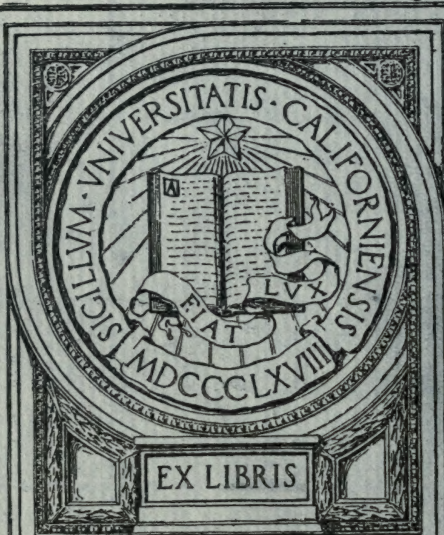


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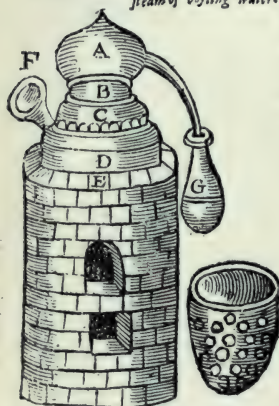
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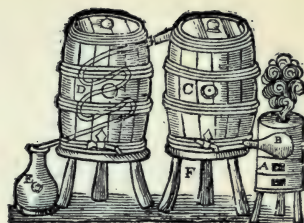


- D, Shows the brass vessel containing the water as it is plac'd in the
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E, The Furnace containing the vessel.
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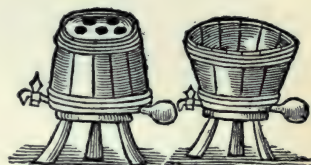
A, Shows the head
of the Alembick;
B, The body thereof,
placed in a brass
vessel made for that
purpose.
C, A brass vessel per-
forated in many
places to receive
the vapour of the
water. This vessel
shall contain the
Alembick compas-
sed about with saw-
dust, not only that
it may the better
and longer retain
the heat of the va-
pours, but also lest
it should be broken
by the hard touch
of the brasen ves-
sel.

E 3

The



- A. The furnace with a Copper globe. B. The Copper globe.
C. The distilling vessel. D. The refrigeratory with a worme.
E. The receiver. F. Stooles on which the vessels stand.



- A Balneum with a cover
having holes in it for
the glasses, set upon a
tree toot.
A wooden vessel
for the making of
Beer.

C o 2

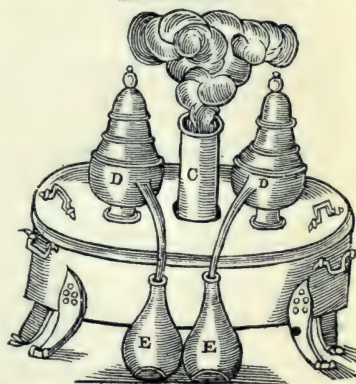
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AN ESSAY

ON THE

APPLICATION

OF

MATHEMATICAL ANALYSIS TO THE THEORIES OF
ELECTRICITY AND MAGNETISM.

BY

GEORGE GREEN.

VON

Dr. H. Helmholtz,

Rollingham:

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1828,

Über

die Erhaltung der Kraft,

eine physikalische Abhandlung,

vorgelesen in der Sitzung der physikalischen Gesellschaft zu Berlin,
am 23sten Juli 1847

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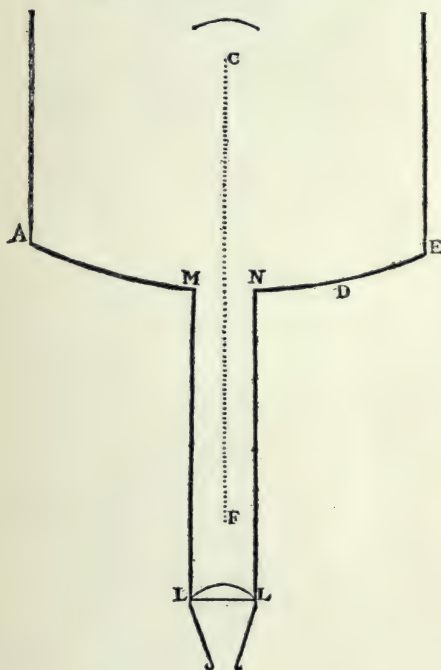
1847.

CATOPTRICÆ ET DIOPTRICÆ SPHÆRICÆ ELEMENTA.

Auctore *DAVIDE GREGORIO*,
M. D. Astronomiæ Professore Saviliano
Oxoniz, & Societatis Regiæ Socio.



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Anno Dom. MDCCXIII.



98 **DIOPTRICÆ**
est *a* : Similiterque radii qui intra lentem
ad *β* convergunt, refractione ad *NLP* à
b divergunt, hoc est, radiantis *AEB*, di-
stantiâ datâ *VE* à lente remoti, imago à
lente *NKMP* facta est *ae b* quæ distin-
cta est oculo dato in *o* ; quoniam in
data distantia *oe* oculo debita ponitur :
sed & in angulo dato *aob* videtur ab
oculo *o*, distantia datâ *oL*, à lente re-
moto, & lentis crassities *VL* æqualis est
datæ rectæ, q. c. f.

Eadem constructio infervit, si oculus
presbyta detur : in eo enim casu, *ae b* in-
finitè distat, & rectæ quæ prius erant *aL*,
bL, ducendæ sunt per *L*, positione datis *o*
a, *ob* parallelæ, & centrum superficiæ *N*
LP (per *Corol. 6. Prop. XIV.*) triente re-
ctæ *L*, ab *L* distabit.

Quòd si visibile propositum longin-
quum sit, constructio adhuc simplicior
evadet : centrum enim superficiæ anteri-
oris *KVM* (per *Corol. 1. Prop. XIV.*)
triente rectæ *v* à vertice *v* distabit.

Prop. XXIV.

[95]

distantiam ejusdem ab oculi centro, ita tangens semianguli visorii
imaginis primæ ex oculi centro, ad tangentem semianguli visorii
ejusdem imaginis primæ, ex vertice suæ emergence, vel semiangu-
li visorii imaginis secundæ, ex vertice suæ incidentiæ : & rursus
ut distantia imaginis secundæ à vertice suæ emergence, ad distanti-
am ejusdem à vertice suæ incidentiæ : ita tangens semianguli vi-
sorii imaginis secundæ ex vertice suæ incidentiæ, ad tangentem se-
mianguli visorii imaginis secundæ ex vertice suæ emergence, vel
semianguli visorii imaginis tertie ex vertice suæ incidentiæ : & ita
progrediatur ad semiangulum visorium imaginis ultimæ ex vertice
suæ emergence, seu visibilis ex vertice suæ incidentiæ, qui semi-
angulus duplicatus dat. angulum visibilis quæritur ex vertice suæ in-
cidentiæ. Demonstrationem videre licet in *Prop. 53 & 57* hu-
jus.

De Mechanica horum speculorum, & lentium, ab aliis frustra
tentata ; ego in mechanicis minus versatus nihil dico : zudacter
tamen assero, optice perfectionem in lentibus & speculis sphericis
frustra queri. Si vero cui placeat poterit præcipuus suus tractatus
propositiones, sphericis applicare ; est non adeo perfectæ. Porro
enim sphericæ (præterquam quod radios parallelos in unum pun-
ctum non congregat) locum imaginis præbet in una superficie
spherica, habente idem centrum cum portione ; quæ superficies
non potest omnimodo concurrere cum alia superficie spherica : 2.
his tamen concursus requiritur, saltem ad sensum, ut ex prædictis
satis apparet. Aliæ etiam sunt lentium sphericarum imperfectiones,
à dictis emergentes ; veluti, quod in telescopiis multum am-
plificantiis, pertinet ad imaginem ultimam, vix poterit ultra
duos vel tres gradus dilatarî ; ut computanti satis patebit ; unde
provenit horrenda obscuritas. At contra, lentes hyperbolicæ so-
lum obijciunt, quod nihil possit distinctissime videri, præter pun-
ctum visibilis, in axe machine existens : Sed hæc infirmitas (si ita
appellare liceat) in ipso oculo est satis manifesta ; non tamen na-
turæ imputanda ; quæ nihil frustra, sed omnia quam commodissi-
me peragit. Nihilominus, lentibus, & speculis conicis non con-
cessis ; satis erit portionibus sphericis uti loco sphaericoon, & co-
noideon parabolicarum ; in catoptrica ; quam hyperbolicarum in
dioptrica ; cum quibus portiones sphericæ minus conveniunt.

Hic inur ad astra.

Prop.

No. 8656 (page 439).

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AVTHORE
THADDAEO HAGECIO
ab Hayek.



FRANCOFVRDI
Apud heredes Andreæ Wecheli,
MDLXXXV.

THADD. HAGECII
aquæ copiam; & lubricant ob visciditatem; &
maximè per vias vrinæ transeunt. Quoniam
autem Angli quoque, Cerevisia suo modo parata
vuntur, quid de ea censuerit Brudus Lusitar. us,
vir doctus, placuit huic loco subnectere. Is igitur
in libello de ratione victus in febribus ad An-
glosia hæc verba scriptum reliquit: 'Potus, quo
communiter Angli vuntur, multiplex est; nem-
pe vehemens, medius & imbecillior. Discrimen in-
ter hos penes vehementiam & imbecillitatem, cal-
factionem & refrigerationem, & penes substantia
crassitiem & tenuitatem habetur. Apud Anglos
triplex semper paratur potus; nempe aquosus,
quem simpliciter Cerevisiam dicunt; medius,
quem trihapenninam; potens, quem duplicem
Cerevisiam nuncupant. Simplex eisdem effe-
ctus præstat, quos vinum aquosum: aperit siqui-
dem, refrigerat & distributionem adiuvat. Nec
decipiatur aliquis credens, ob eius amaritudinē
calfacere: partes enim, quæ Cerevisiam amaram
reddunt, paucæ admodum sunt, si ad reliquas
conferas, quæ in ipsa refrigerant. Quod collige-
re ex ratione lupulorum poteris alii aquæ &
hordei portiones. Citò præterea amaritudo à
Cerevisia evanescit: reliquarum verò partium fa-
cultas tamdiu permanet, donec in aliam trans-
mutetur substantiam. Potens Cerevisia, quæ du-
plicem dicunt, potenter calefacit; & aliquid ha-
bet vehementiæ, vt potens vinum. Trihapen-
nina, mediæ naturæ est; manifestè calefacit, in
nullo tamen vehemens est. Meruinit adhuc
Brudus

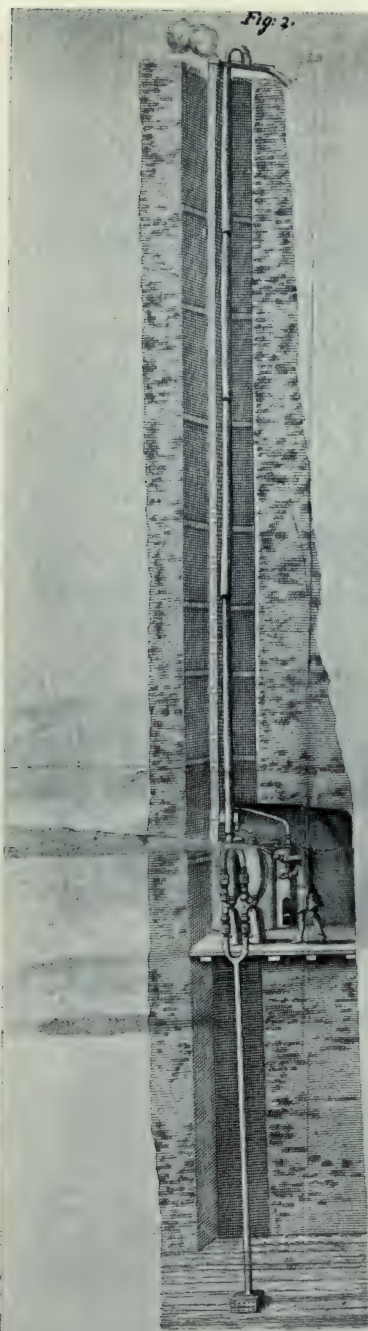
in Lobley adnotat pag 471

Cerevisia, à veteribus dicta,
sive Biera Tritonica Angli
Britannica omnium suavis-
sima & saluberrima, calidioribus
regionibus utilissima et cen-
suetudinis in parandis radi-
one exactissima, et largissi-
ma observationis, Angli-Dei-
tanno in naculo à C.D.I. Cops
plantantur puritissima accipe

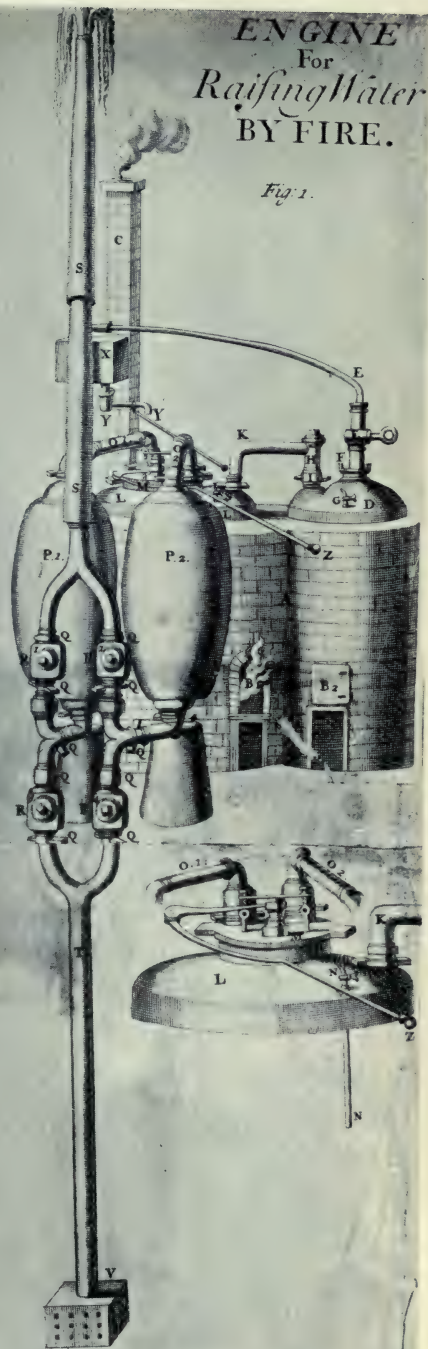
Rec. Aquæ fluvialis B Gal-
mæ 40 fortiter hinc tam-
conclusionis 7 pars spiritus for-
tia d. in qua infundit et macta
ra modum hinc optimi Mal-
mæ aut triti: hinc cuncta
reddita per terram integram
in cypra aut paulo solut: tom,
pore per aspectu, liquore, vort,
Britannica et Belgica voca-
tur, poretur in vort

Cerevisia Martia vgo,
tans, inapimæ albus
peditissima, in am- &
ditiis peditant.

Rec. malte, recentis molis,
et viginti aut e, triti Mal-
xij. Anone modum
peditant, peditant aut Fab-
ru, et Tritici triton, a-
tantumque Ag: q. f. imple-
is tribus volis Aquitan-
mæ, aut Bursopala pedit-
mæ, vortante Cerevisia
et in vortis tritonis.
Forsitan tertiam Aquæ pa-
ter, modo supradictis: infun-
tantur vort aquæ pedit-
Banda tertia afferunt.

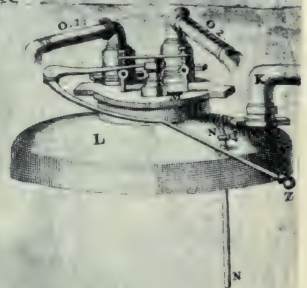


The
ENGINE
Working in a
MINE.



ENGINE
For
Raising Water
BY FIRE.

Fig. 1.



B. Lons delin: J. Sturt sculp

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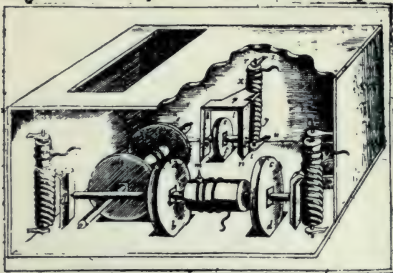
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- 8965 — : [HARRISON (John; grandson of '*Longitude Harrison*')] MEMOIRS of a TRAIT in the CHARACTER of GEORGE III., authenticated by Official Papers and Private Letters in Possession of the Author: with Appendix of Illustrative Tracts, etc., abridged from the Original Work in Manuscript, by JOHAN HERRINS [anagram], Gent., 8vo. hf. cl., uncut (scarce), 15s 1835
- Dealing exclusively with the last payment of £10,000 to John Harrison, tardily and unwillingly paid by the Board of Longitude on the intervention of King George III. himself. The work is especially directed against Dr. Maskelyne, the Astronomer Royal, who is supposed to have shown special hostility to Harrison in order to advance his own imperfect method of finding the longitude by lunar distances only.
- 8966 — THE ORIGINAL MANUSCRIPT, neatly written on 1376 pages, 16 parts 4to. sewn, £5. 5s Sæc. XIX.
- A very interesting manuscript, very rich in information regarding John Harrison's life and work. Only a very small portion of it has been printed in the above published work.
- 8967 — : SMILES (Samuel, LL.D.) JOHN HARRISON, the CHRONOMETER-MAKER, 8vo. (pp. 16), hf. crimson morocco (scarce), 5s [1882]
- 8968 — ANOTHER COPY, sewn, 3s 6d

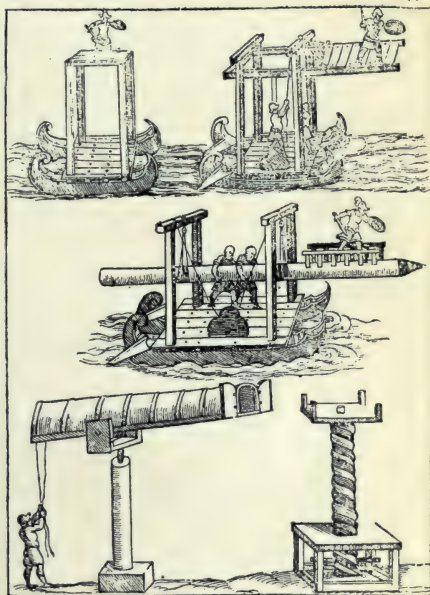
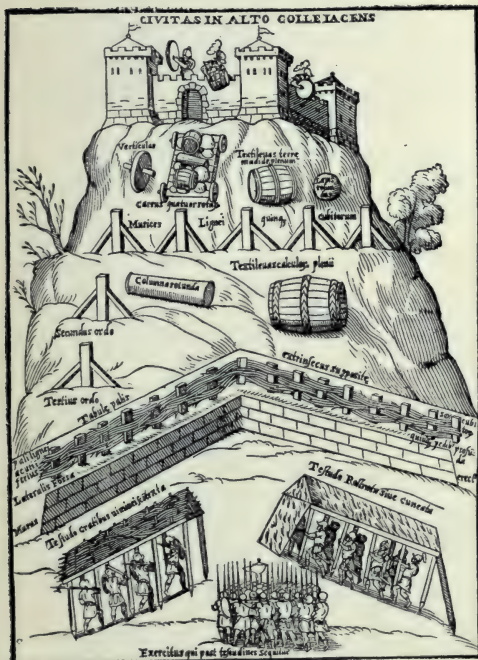
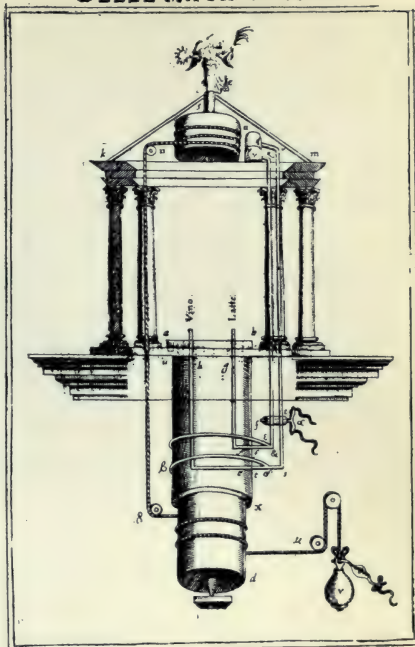
- 8970 **HARRISON** (John, 'Longitude Harrison'): MASKELYNE (Nevil, *pr.*, F.R.S., *Astronomer Royal*) ACCOUNT OF THE GOING OF MR. JOHN HARRISON'S WATCH, at the ROYAL OBSERVATORY, from May 6th, 1766, to March 4th, 1767, with the Original Observations and Calculations of the same, published by Order of the Commissioners of Longitude, 4to. (pp. 84), *sewn (rare)*, 17s 6d 1767
This work forms perhaps the best testimonial, against the attacks of Harrison and Mudge, to the scrupulous fairness of the Astronomer Royal in testing the new chronometers; though, as mentioned above, Harrison was kept out of the covenanted reward as long as possible for reasons which some have imputed to Dr. Maskelyne. The conditions under which they were examined agree on the whole with the Kew rules of the present day.
- An appendix contains 'Observations of Equal Altitudes of the Sun taken at Portsmouth, Jamaica, and Barbadoes, according to the Time of Mr. Harrison's Watch.'
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- 8977 **HARTMANN** (Carl Friedrich Alexander) HANDBUCH der MINERALOGIE zum Gebrauch für Jedermann; with 30 folding plates, and numerous woodcuts, 2 thick vols. 8vo. boards (*scarce*), 10s Weimar, 1843
- 8978 **HARTMANN** (Eduard v.) DIE WELTANSCHAUUNG der MODERNEN PHYSIK, *roy.* 8vo. *sewn*, 3s 6d (p. M. 6.50) Leipzig, 1902
- 8979 **HARTMANN** (Johann; Univ. Marburg) PRAXIS CHYMIATRICA, edita à JOHANNE MICHAELIS, nova Editio: adjecti sunt TRES TRACTATUS NOVI, 16mo. (pp. 360), *old sheep (rare)*, 15s Geneva, 1647
- 8980 ——— ANOTHER COPY, contemporary vellum, 16s
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- 8981 ——— EDITIO NOVA, recognita et emendata prae omnibus hactenus Editionibus [cum Prefatione JOHANNIS ANTONIDIS VAN DER LINDEN], 18mo. *nice copy in vellum*, 10s Lugd. Batavorum, 1663
This edition does not contain the three treatises included in that of 1647.
'C'est le plus important des ouvrages de Hartmann.'—*Biogr. Gén.* The author was the first professor of chemistry in any University.
- 8982 **HARTSOEKER** (Nicolas) CONJECTURES PHYSIQUES; with vignettes, map, and numerous diagrams: ECLAIRCISSEMENTS sur les CONJECTURES PHYSIQUES; with diagrams—2 vols. 4to. in 1, *old calf gilt (rare)*, 12s Amsterdam, 1706-10
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The author is perhaps best known for his improvements in the microscope and telescope.
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- 8986 ——— RESULTS OF EXPERIMENTS relating to COMPARATIVE MEANS of DEFENCE afforded by SHIPS OF WAR having SQUARE and CURVILINEAL STERNS, with 2 folding plates by Basire, 8vo. *hf. calf gilt (SCARCE)*, 12s 6d 1824
'To the Right Honble. the Earl of Morley, with the Author's respectful Compliments.'—*Inscr. on title.*
The above work is not noticed by Lowndes and Allibone, and is scarce. There is no copy of it in the Library of the Institution of Naval Architects.
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- 8989 ——— Ueber die BESTIMMUNG und VERBESSERUNG der BAHNEN von HIMMELSKÖRPERN nach drei Beobachtungen, 4to. *sewn*, 5s ib., 1901
- 8990 ——— Ueber die GEOMETRISCHE METHODE zur BESTIMMUNG der BAHNEN von HIMMELSKÖRPERN nach fünf Beobachtungen, 4to. *sewn*, 5s ib., 1910
- 8991 ——— UNTERSUCHUNGEN über einen speciellen Fall des PROBLEMS der DREI KÖRPER; with plate, *roy.* 4to. *sewn*, 4s St.-Petersbourg, 1886
- 8992 ——— Ueber die ZEITBESTIMMUNG im VERTICALE des POLSTERNES, 4to. *sewn*, 3s 6d Leipzig, 1899

a, t, u, dentro questi si giri la vite x, y, e la lingua q, si cacci nel canale della detta vite. Quando dunque alti tri guerà la vite, x, y, s'alzerà, & abbasserà il rigolo



l, m, mediante la linguetta q. Accioche poi ciò per se medesimo si faccia, auiluppisi la corda intorno vna parte della vite, la quale habbia scambieuioli auiluppiamenti, & allentamenti aggomitolati, misurati agli spatij, ne quali si muoue la cassa; e le medesime cose si facciano ne gli altri due rigoli, ne i quali sono le punte g, h: Bisogna però auertire che le tre uiti siano al tutto eguali fra loro, e gli allentamenti parimente, accioche le tre ruote tutte insieme discendano, perche in questo modo il viaggio della cassetta sarà facile, & insieme sicuro.

Egli è possibile in altro modo ancora fare, che la cassetta pigli le volte, non solo per vn rettangolo parallelogrammo, ma per qual si voglia figura di linee diritte; Anzi egli si può fare ancora che si muoua à bisficia, e ciò con modo più facile, che non è quello, che di sopra habbia: mo in-



Nos. 9180 and 9183 (page 463).

Early machinery and engines of war.

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- Requiring only the most elementary knowledge of arithmetic to be understood. The above edition was unknown to the author's biographer in D. N. B., who only mentions the reprint of 1788.
- 8996 **HASKELL (Mellen Woodman, Univ. Cal.)** The CONSTRUCTION of CONICS under GIVEN CONDITIONS, roy. 8vo. (pp. 6), *sewn, with author's inser.*, 1s 6d [New York, 1905]
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This work formed the basis of the author's 'Principles of Animal Mechanics'. It was unknown to the author's biographer in D. N. B.

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In his preface he mentions that 'the Nature and Laws of Electrical Attractions have not yet been much consider'd by Any'. In the above work and his contributions to the Royal Society he carried further the tentative observations of Dr. Gilbert and Boyle on electricity, and by his experiments may be said to have laid the foundation of that science. He certainly was the first to discover the electric spark. He also determined the relative weight of water and air, and ascertained the refractive index of various fluids.

The above second edition contains a Supplement (pp. 86) of 24 new experiments, which is not contained in the edition of 1709.

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1788

CONTENU:—Explication de l'Effet des Trompettes Parlantes: l'Art de Respirer sous l'Eau, etc.: la Balance Magnétique, etc.: Lettre à M. Bourdelot: Dissertation sur la Cause de l'Echo: Particularités essentielles de l'Instrument Acoustique de M. de Hautefeuille.

'Je m'étois donc chargé de perfectionner 1^o des cornets acoustiques; en trouver un dont la construction, plus conforme à la théorie de l'air sonore, fit plus d'effet sur l'oreille; de façon qu'étant appliqué sur cette partie, il fit entendre la conversation de plus loin, et épargnât désormais l'assujettissement incommode d'avoir la bouche si proche de cet instrument pour parler. 2^o Faire une machine par laquelle on pût entendre la conversation par les dents', etc. etc.—*Introduction*.

The editor was unknown to Barbier or Quéraud.

- 9033 **HAUSEN (Christian August; Univ. Leipzig)** NOVI PROPECTUS in HISTORIA ELECTRICITATIS, post Obitum Auctoris ex Msto. ejus editi; præmissa est Commentatiuncula de Vita et Scriptis Auctoris; *with fine copperplate, 4to. sewn (rare), 12s 6d* Lipsiæ, 1743
Valuable as containing a description (and illustration) of the author's electrical machine—the first one made in Germany—consisting of a glass cylinder. It differed only slightly from Hauksbee's (v. Nos. 9023-7, ante), but was of some importance in having finally displaced the glass tubes till then in general use.
- 9034 **HAUSER (A.)** COURSES DE CONSTRUCTION NAVALE, professé à l'École d'Application du Génie Maritime, 4to., with *Atlas, containing 340 plates comprising 1771 figures, impl. 4to.—2 vols. hf. roan (SCARCE), £2. 10s* 1886
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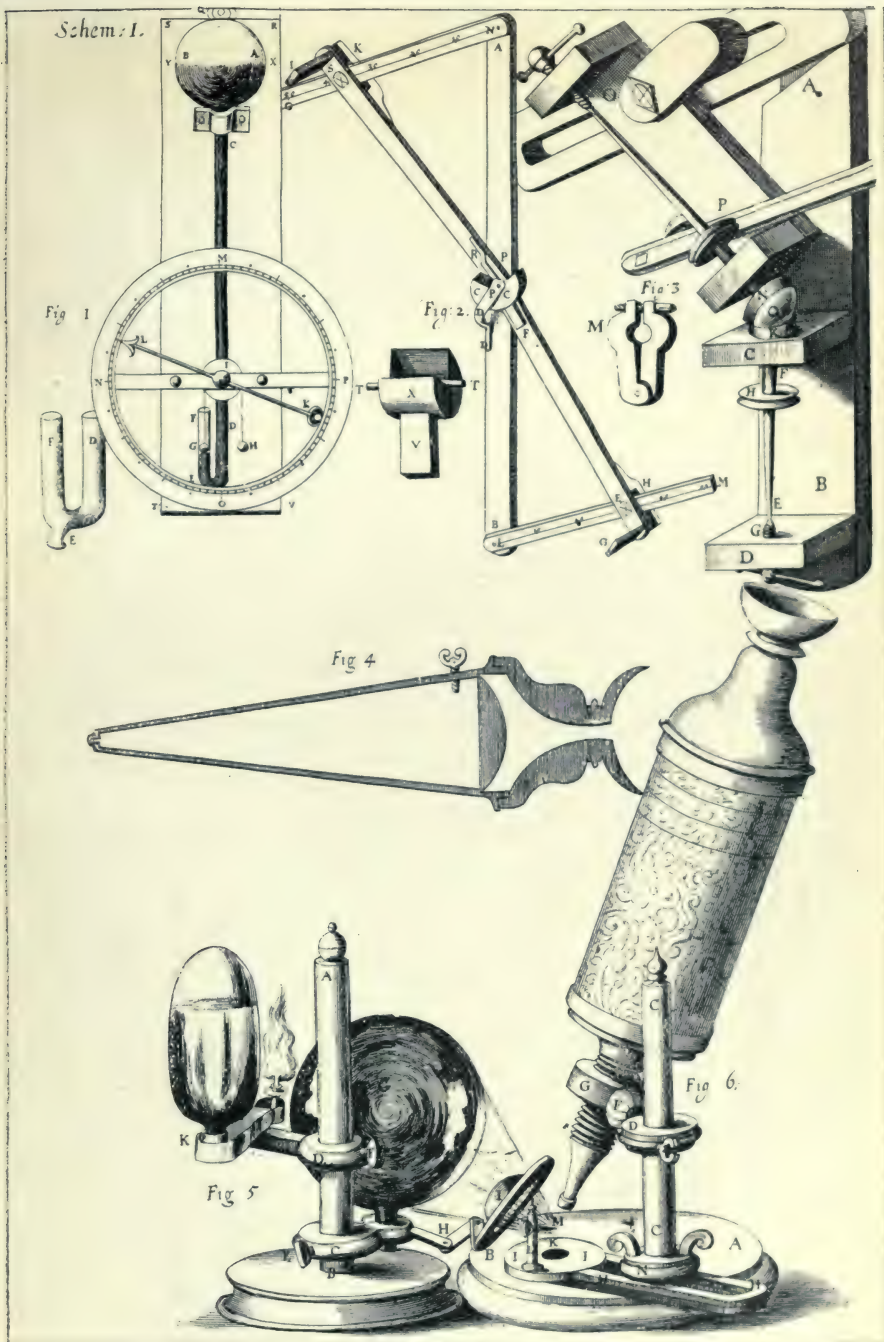
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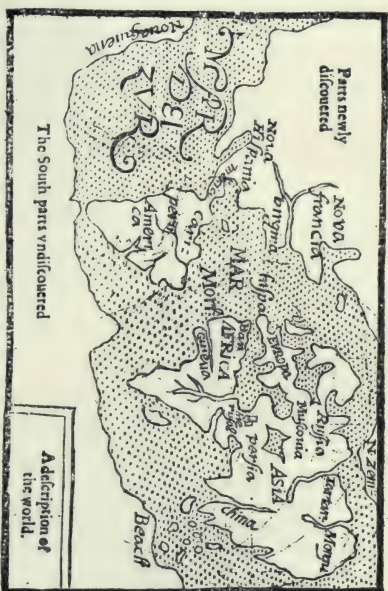


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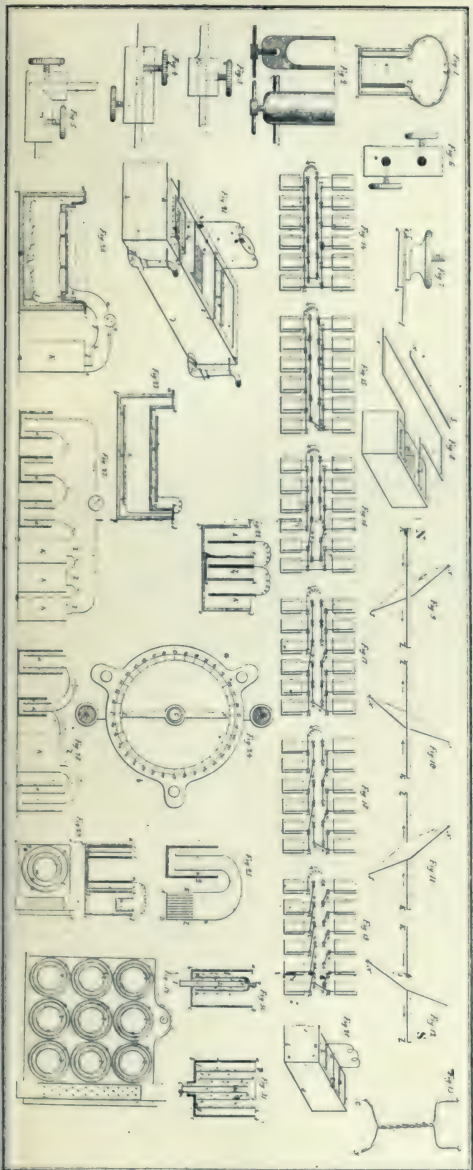
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Portrait of Johann Kepler.

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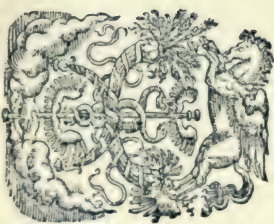
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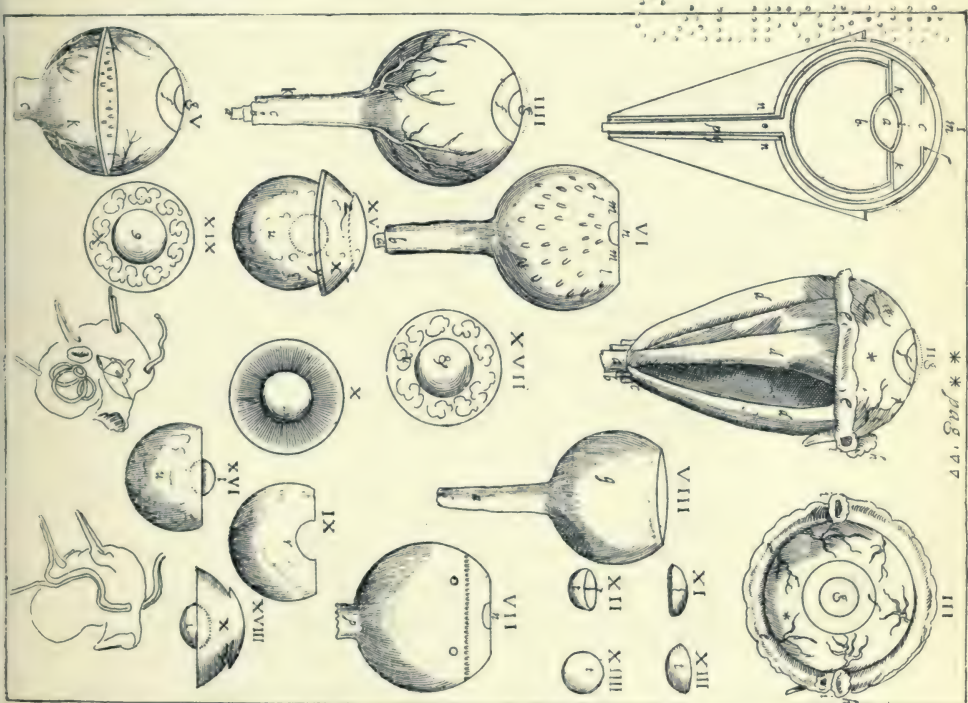


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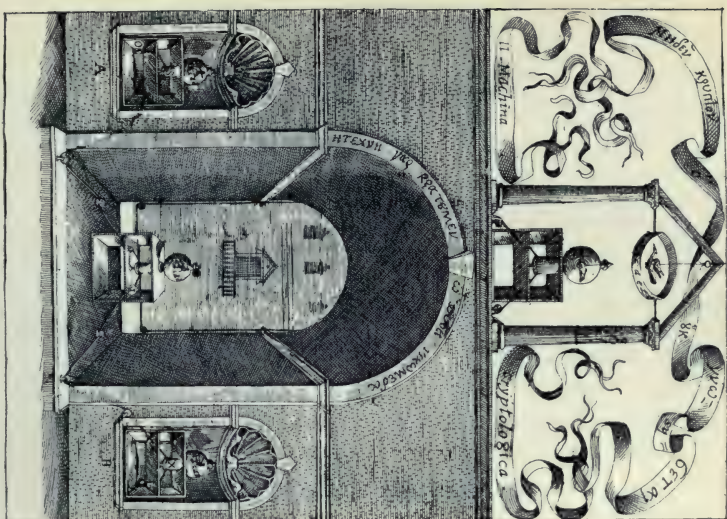
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cylindrorum alteruter, alterutro operante *επιστάτης*, solli debet, ne Magnetice flatus motum impediat, aut cohibeat. Tercio, ut omnia inveni-
menta, magnetes motiones silentia, tollantur. His observatis, videlicet specu-
lum omnino iocundum, & plenum admirationis.

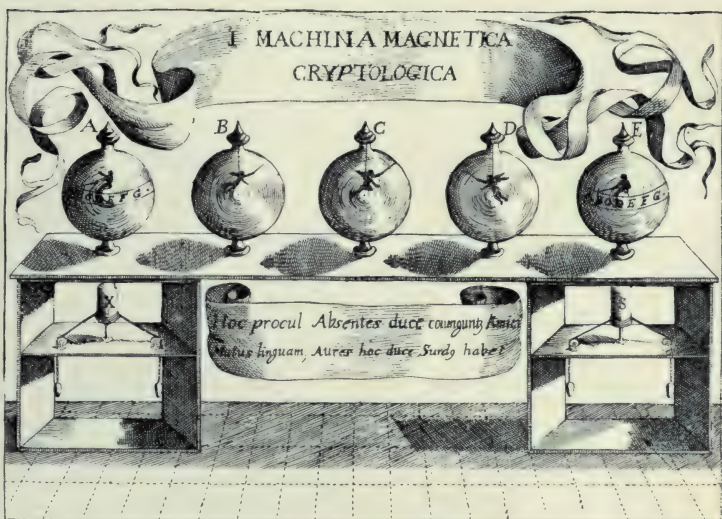


Verum cum non omnes tanta magnetum copia abundent, ut huiusmodi ar-
tificum conficere possint; hic aliam methodum docuimus, qua duobus valis di-
cta *επιστάτης* quibuscumque duobus locis assumpsit exerceri possit. Mantentur igitur

B b

vala

vala A, & E, primum videlicet & vltimum, in conclusibus quibuscumque di-
uersis, ea ratione, qua in precedentibus docuimus, instructa; horum vero cylindri
ca arte constituantur, ut virgine una & eadem chorda circumagatur; Vt si cylin-



drus S, una cum magnete circumducatur, circumducatur & eodem tempore
cylindrus X cum magnete suo; & e contra; Chorda vero per occultos parietum
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- 10162 ——— ITER EXTATICUM CELESTE, quo Mundi Opificium, id est, Cœlestis Expansi, Siderumque tam Errantium, quàm Fixorum Natura, Vires, Proprietates, singulorumque Compositio et Structura . . . Novâ Hypothesi exponitur ad Veritatem. . . hac II^a Editione Præclusionibus et Scholiis illustratum . . . neonon à Mendis, que in Iam Romanam Editionem irreperant, expurgatum à GASPARE SCHOTTO, S. J.; accessit ejusdem Auctoris Iter Extaticum Terrestre, et Synopsis Mundi Subterranei; with engraved title (including PORTRAIT), engraved arms on rev. of printed title, and 12 copperplates, thick 4to. *old vellum (somewhat browned as usual, otherwise a very sound copy)*; RARE, £1. 5s Herbipoli, 1660

This work, which is important for the history of astronomy, is perhaps the most curious of Kircher's publications. The discussion whether the water, which the author asserts to be in the planet Venus, may be used for baptism [which would have tickled Father Tyrrtel, *ejusdem Societatis*], and some other extraordinary things of a similar nature, have rendered the possession of the book interesting to collectors.—*Libri Catalogue*. Needless to say, the author rejects the Copernican system, but adopts that of Tycho Brahe.

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den ist/ was da überbleibt/ setze vñnd
den ins Crüz/ wo sber dann bey-
de Probzalen oben vñnd vñnden ins
Creüz einandern gleich / schließ
ich du habist recht getheilt. Als ich
wil das lest Exempel diser Spe-
cies Probieren/ stabe also:

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*Accessit appendix de Arithmetica
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diosè demonstranda, & usui ac-
commodanda.*

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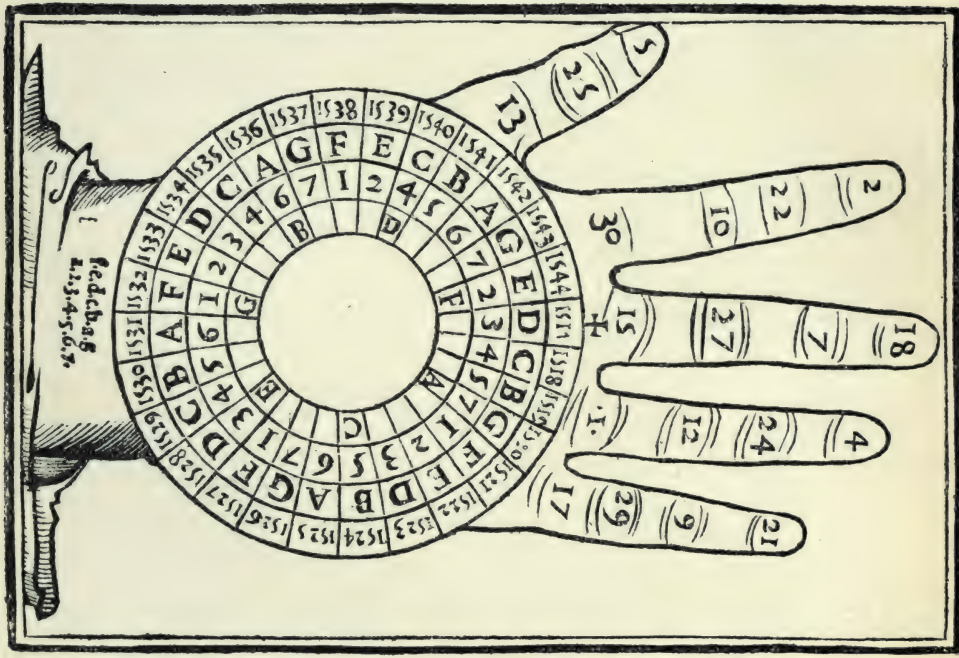
79

15
4 28 75
3 5 Radix Cubica.
2 7 9 Triplum Radicis, vel Nu-
merus primus.
2 7 Radix duæ in Triplum,
id est, Divisor.
..... 125 Cubus quotientis, (5.)
..... 225 Quadr. de Quotiẽte (25.)
135 in numer. primum (9)
Quotiens (5) ductus in
divisorem (27)
15875 Numerus addit. subtrah.
Notatus punctis, queritur ex Tabula, Rad. Cubi-
ca de 42. Hic numerus non exat Sumo proxim.
26 cũ Radicibz scribenda sub puncto. Ablatis 27
à 42 restant 15. Triplum Radicis inventa 3, est 9,
scribenda sub 7, caractere scilicet proximo sequen-
ti puncto. Eadem radix 3 ducta in hoc triplũ 9
facit 27, Divisorẽ ponendũ loco sequenti: Ducta
tur linea. Quoties 27 in 158, vel 2 in 15? Invenio 5
que altera est radix, ponendo sub altero puncto.
Cubus de 5 est 125, supponendus ipsi puncto ant
invento Quotienti. Quadratum Quotientis ejus-
dem est 225, quod ductum in Numerum primum
vel triplum 9, facit 225, scribenda loco sequenti.
Insuper Quotiens 5 multiplicatus in Divisorẽ 27
facit
D 4

No. 10569 (page 526).

Two early works on Arithmetic.

Libro de Abaco nouamente
 compolto per magistro Fracelco dala zdio Ve
 roneſe el quale inſegna aſare molte raſone
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 ci & monete nouamete ſtápato.



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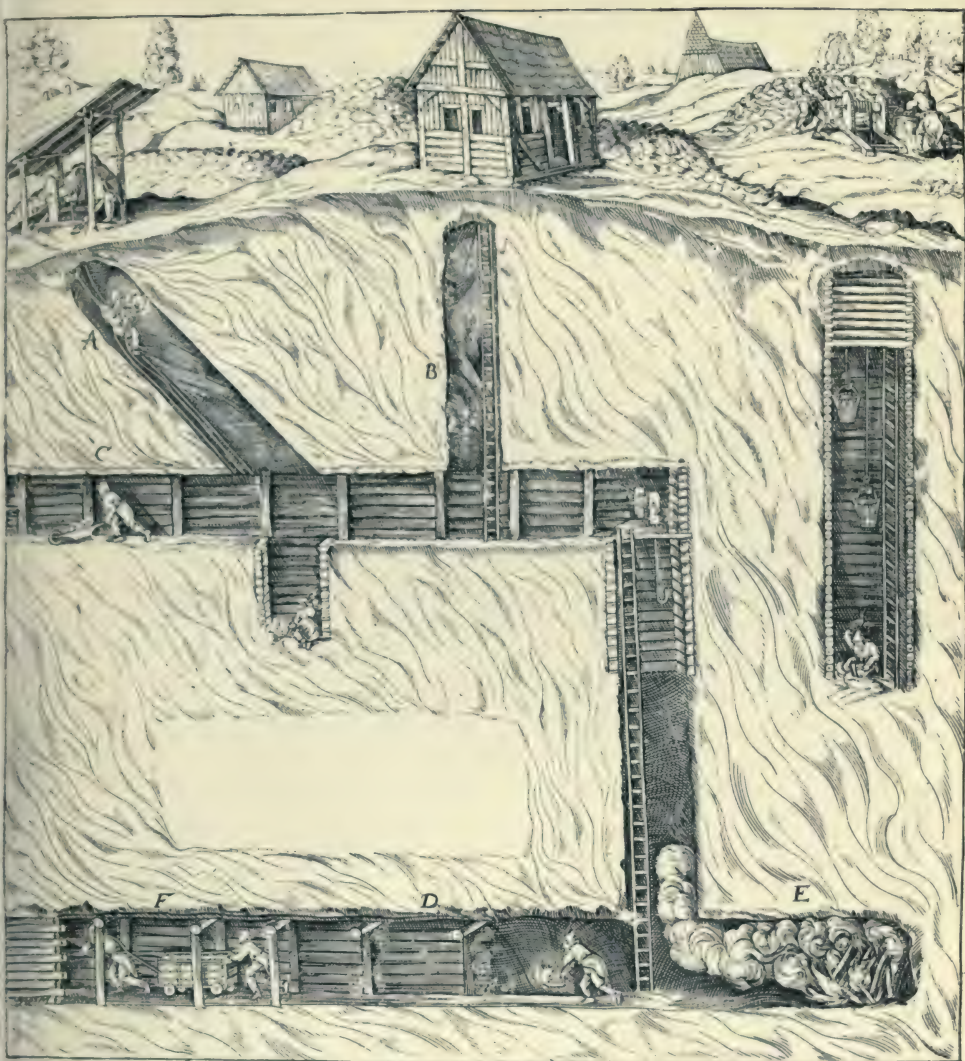
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ibidem, 1583

A copious account of Magini's *Ephem. rules* will be found in Delambre's *Histoire de l'astronomie du moyen âge*. Kepler, who referred to Magini as 'summus in professione mathematica vir', invited him to help in the compilation of new astronomical tables (afterwards known as the Rudolphine Tables). According to *Biogr. Gén.*, this was done by Copernicus—a palpable error, as Copernicus died 12 years before Magini's birth.

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According to the same authority, the above and the *Novæ cælestium orbium theoricæ*, published in 1608, were the only two works in which the author follows wholly the Copernican system. In all the works published between 1585 and 1608 he adopted a curiously involved system of his own, probably inspired by a fear of the Inquisition, with which not many years afterwards Galileo got into difficulties.

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The author died a martyr to science at the early age of 35, from injuries received by carrying a blazing naphtha still into the street, in an attempt to save the premises.
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This valuable work consists of a *résumé* of all the scientific researches on sugar which had hitherto been dispersed throughout the scientific journals of the various nations.

MARAT SAVANT :

- 11385 [**MARAT (Jean Paul)**, *Docteur en Médecine et Médecin des Gardes-du-Corps de Monseigneur le Comte d'Artois ; M.D. of St. Andrews ; killed by Charlotte Corday*] MÉMOIRE sur l'ELECTRICITÉ MÉDICALE, couronné le 6 Août 1783, par l'Académie Royale des Sciences, Belles-Lettres et Arts de Rouen, 8vo. *sewn* (RARE), 15s 1784

This work has the merit of being one of the first to treat soberly the subject of electro-therapeutics at a time when electricity was thought to be a panacea for every known disease, and when generally far more harm (referred to on p. 100) than good was done by the electrical enthusiasts.

- 11386 [—] NOTIONS ÉLÉMENTAIRES d'OPTIQUE ; with 2 copperplates, 8vo. boards, *uncut* (slightly water-stained) ; RARE, £1. 1s Didot, 1784

Though now chiefly known as one of the most hideous monsters of the Terror, and as the author of *L'Ami du Peuple*, the revolutionary journal, Marat was previously the author of works of no small scientific value. He was one of the first to attack Newton's emission theory of light—a heresy which prevented his election to the French Academy. He translated Newton's *Opticks* into French (*q. v. post*).

The above work gives the author's own theory—a curious variety of the corpuscular one.

- [—] OPTIQUE de NEWTON, Traduction Nouvelle, faite par M*** (1787)—v. NEWTON, *post*.
11387 — RECHERCHES PHYSIQUES sur l'ELECTRICITÉ ; with 5 folding plates, 8vo. *sewn* (VERY RARE), £1. 15s 1782

This, like the rest of the author's works, is full of original ideas and experiments. Pp. 345-53 contain an interesting chapter, 'Des Phénomènes électriques relatifs à l'Ébranlement de la Lumière,' in which he attempts an explanation of the phenomena.

- 11388 — PHYSISCHE UNTERSUCHUNGEN über die ELEKTRICITÄT, übersetzt, mit Anmerkungen, von C. E. WEIGEL ; with 5 folding plates, 8vo. boards, with auto. of C. G. Eschenbach (Prof. Chemistry, Univ. Leipzig, 1753-1831), 12s 6d Leipzig, 1784

- 11389 — RECHERCHES PHYSIQUES sur le FEU ; with 7 folding plates, 8vo. *sewn* (RARE), £1. 5s 1780

- 11390 — ANOTHER COPY, boards, *uncut* ; or, *hf. cl.* (both nice clean copies), £1. 8s 6d

In this work the author attempts to give, by his theory of a *fluide igné*, a mechanical explanation of the phenomena of heat.

Marat stayed many years in England, and some time, as a teacher of French, in Edinburgh, where he published in 1774 a revolutionary pamphlet 'The Chains of Slavery.' On the recommendation of certain Edinburgh physicians he received the degree of M.D. from St. Andrews University. According to Chambers's *Encyclopædia*, he was already dying of 'a loathsome skin disease', contracted while hiding in the sewers of Paris from Lafayette's police, when he received his death-blow from Charlotte Corday. The last two works contain the *Privilège* from Louis XVI. to his 'bien aimé, le sieur Marat', who afterwards was the most ruthless promoter of his murder.

All his scientific works are now VERY RARE.

- 11391 — PHYSISCHE UNTERSUCHUNGEN über das FEUER, übersetzt, mit Anmerkungen, von CHRISTIAN EHRENFRIED WEIGEL, 8vo. *sewn*, 6s 6d Leipzig, 1782

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[*col. :*] *Venetia, per Francesco Marcolini, 1556*

A very rare work, known to Ricciardi (who is unable to give a collation or full description) only by repute, and unknown to Poggendorf, Brunet, Graesse, and other bibliographers. There was no copy in the Libri Library.

- 11394 **MARCET (Alexander John Gaspard)**, M.D., F.R.S. ; husband of Mrs. Jane Marcet] CHEMICAL ACCOUNT of an ALUMINOUS CHALYBEATE SPRING in the ISLE of WIGHT, 4to. (pp. 36), *sewn, with author's inser.*, 3s 1811

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- 11398 — CONVERSATIONS on NATURAL PHILOSOPHY ; in which the Elements of that Science are familiarly explained, and adapted to the Comprehension of Young Pupils, 13th Edition, with 24 plates, thick post 8vo. *cl.*, 3s 1858

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[*col.*] Venetia, F. Rampazetto, 1567

*These Mercantile Tables are not unjustly considered as great rarities, most of the copies having no doubt been destroyed by constant use. Although Prof. de Morgan gives the name of Mariani in his Index, he does not seem to have seen the book, as he does not give the title of the work.—*Libri Catalogue*, which contained only the editions of 1567, 1580, and 1591.

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Unknown to Riccardi, Poggendorff, Graesse, or Brunet.

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The most important of the above works is the *Essai de la Nature de l'Air*, which contains the law of compressibility of gases, known on the Continent as Mariotte's Law, although it was discovered 17 years before by Robert Boyle (*v. Nos. 540 and 642 ante*). Of importance also is his *Essai du Chaud et du Froid*, which includes observations on radiant heat, and the *Traité de la Percussion*, containing original investigations on the subject, and his percussion apparatus in use at the present time in physical laboratories.

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$$\begin{array}{r} \frac{1}{2} \text{ by } \frac{1}{2} \\ \hline \frac{1 \times 1}{2 \times 2} \\ \text{Fact } \frac{1}{4} \end{array} \quad \begin{array}{r} \frac{7}{8} \text{ by } 9 \\ \hline \frac{7}{8} \\ \text{Fact } 7 \frac{7}{8} \end{array}$$

$$\begin{array}{r} 3 \frac{11}{12} \text{ by } 5 \\ \hline 7 \\ \text{Fact } 15 \frac{1}{2} \end{array} \quad \begin{array}{r} 4 \frac{1}{2} \text{ by } 3 \frac{1}{2} \\ \hline 2 \frac{1}{2} \\ \text{Fact } 15 \frac{1}{2} \end{array}$$

$$\begin{array}{r} 5 \frac{5}{8} \text{ by } 4 \\ \hline 22 \\ \text{Fact } 19 \frac{1}{2} \end{array} \quad \begin{array}{r} 15 \frac{11}{12} \text{ by } \frac{1}{2} \\ \hline 7 \\ \text{Fact } 7 \frac{7}{8} \end{array}$$

Abreviation of the worke of some of the former examples,

$$\begin{array}{r} \frac{7}{8} \text{ by } 9 \\ \hline 1 \frac{1}{2} \\ \text{Fact } 7 \frac{7}{8} \end{array} \quad \begin{array}{r} \frac{1}{2} \text{ by } \frac{1}{2} \\ \hline \frac{1}{4} \\ \text{Fact } \frac{1}{4} \end{array} \quad \begin{array}{r} 4 \frac{1}{2} \text{ by } 3 \frac{1}{2} \\ \hline 13 \frac{3}{4} \\ \text{Fact } 15 \frac{1}{2} \end{array}$$

The reverse instruction is, of Division in fractions.

TO divide a fraction given, by a fraction (of the same kinde) given, bring them both vnder one common denomination, then divide the new found numerator of the dividend by the new found numerator of the divider, and the quotient is the quotient of the fractions given, the dividend being divided by the divider. If a whole number be to be divided by a fraction, multiply the whole number by the denominator of the fraction, and divide the product by the numerator of the said fraction, then the quotient will be the quotient of the whole number divided by the fraction. Contrariwise if a fraction be to be divided by a whole number, the numerator of the fraction is numerator to the fraction of the quotient, and the product of the whole number multiplied by the denominator is the denominator. If a whole number and a fraction be to be divided by a whole number, multiply the whole number which hath the fraction joyned with

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E H H H H H H H E H H H H H H H

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Te a ternum Pa trem om nis terra ve nera tur. Ti bi

V T T Q Q Q Q V Q Q V T Q V V V T T
H H H H H H H H E H H H H H H H

Te a ternum Pa trem o mis terra ve ne ra tur. Ti bi



omnes Angeli: ti bi ce li, & uni ver sa po te sta tes.

Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q V
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Following an invitation to Sweden by the learned and eccentric Queen Christina, Meibom caused the musical instruments of the ancients to be made from instructions contained in the above work in order to revive the ancient Greek music before the Swedish court. As he further insisted on improving the performance by the accompaniment of his own harsh voice, the attempt caused great merriment. He considered himself insulted, and in a fit of rage boxed the ears of the Queen's physician, which at once put a stop to the revival of 'classic' music, and to his further stay in Sweden.

- 11728 **MELANCHTHON** [hic **MELANTHON**, germanice **SCHWARZERD**] (Philipp) DOCTRINÆ PHYSICÆ ELEMENTA, sive INITIA, dictata in Academia Vuitebergensi, ex postrema Autoris Recognitione, cum Rerum et Verborum Indice; editio princeps [col. i] Basilee, ex offic. Joa. Oporini, 1550; LIBER de ANIMA recognitus ab Autore; Witebergæ, hæredes Petri Seitzii, 1544; both works neatly printed in italics, with woodcut initials, and the second with vignette on title—2 vols. 12mo. in 1, VERY SOUND AND CLEAN COPIES in contemporary German pressed vellum on oaken boards, ornamented with biblical figures, and dated 1545, with autos. 'F. Cornelii Curtii 1621', and 'Bibliotheca Augustiniana Ingolstadtii' on title, and numerous marginal notes in a very neat XVI. Century hand (very rare), £3. 15s
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The above first edition of the *Doctrina*, the only independent scientific work published by Luther's fellow-labourer in the Reformation, is excessively rare, and was unknown to Graesse, Poggendorff, and Kästner. The former quotes the editions of 1555, 1559, and 1587, while the other two only knew an edition of 1581. The work is not mentioned at all by Brunet and Etret.

According to Kästner, the first book of the *Doctrina* contains a more lucid exposition of astronomy than is to be found in many treatises published during the XVIII. Century.

Melanchthon also wrote prefaces to Arati Phenomena, 1521, Purbachii Theoricæ, 1534 [v. No. 3502, ante], Schoneri Tabule Astronomicæ, 1536, Alfragani Rudimenta Astronomicæ, 1537, Joannis de Sacro Bosco Libellus de Sphæra [v. No. 4174, ante], and Stifel's Arithmetica Integra, 1544 [q. v. post], wrote a commentary on Ptolemy's de Predictionibus Astronomicis, 1553, and described some eclipses in Bonincontri de Rebus Cælestibus, 1540.

'Il admettait cinq facultés de l'âme: *potentiam vegetativam, sentientem, appetitivam, locomotivam et rationalem*. La révélation divine était pour lui l'un des *critéria* de la certitude. Dans ses *Initia Doctrinæ Physicæ*, il n'admettait pas l'opinion d' Aristarque, démontrée depuis par Kopernick: 'C'est, dit-il, une doctrine contraire à la Bible, et qu'on peut d'ailleurs refuter par la physique, que la Terre et les planètes tournent autour du Soleil'. . . . Il était convaincu avec Platon 'que les étoiles ont été créées pour les yeux de l'homme'.—Dr. F. Hofer.

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lanthonem,

Ex postrema auctoris recognitione.

Cum locuplete rerum & uerborum
in his memorabiliū
Indice.

BASILAE, PER IOAN.
nem Oporinum.



Sed quæstionem qualitatis,
 & motus animæ corporum
 & speciem in natura et
 causis generationum, cor-
 ruptionum, & aliorum mo-
 tuum in elementis, & alijs
 corporibus, quæ ex elementis
 & his alijs sunt mixta, & immixta
 horum commixtione oriuntur, & deinde ad alios
 quantum in hac oblique
 spectant, Quod eo additum, quia
 præterea.

sapientia, & mirabiliter adficeretur animi admini-
 ratione totius naturæ. Iuaret enim primum nosse
 ordinem cælestium corporum, & elementorū, &
 in hoc domicilio collocatū hominem, qui solus inter
 species corporeas est natura rationalis. Deinde con-
 siderata distinctione specierum, scire iuaret, cur
 hæc species semper maneat in bono cum antecela-
 tat cæteris, tantum sit ad hanc arummoſam & eua-
 ngelicentem uitam cõditus: hoc est, sit ne frustra con-
 ditus: quæ sit mentis natura, quæ partium corporis
 præparatum, cerebrī, cordis, meritorum, quæ cum
 sint res frægles, & incedantur fordidæ, tamen acti-
 ues & motus habeant mirandos.

22



No. 12158 (page 605).

Portrait of Sir Samuel Morland.

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as to the *first application* of the gas, as an *economical substitute* for oils and tallow, in the production of light for public and private purposes. This is what I have claimed, and for which I have been honoured with the Royal Society's gold medal; disgraced, I should rather say, if I have *no claim* to the merit thus imputed to me.

But how has this committee stripped me of my claim? Did the German *Diller*, by his philosophical fire-works at the Lyceum, by "his large lustres of little flames in the centre of the room," exhibited for the amusement of the curious and ignorant, make the application of gas to purposes of public and private *utility*; guarding, as I am informed he did, at the same time, his mode of proceeding, with all the mercenary caution of a juggler? Can the Gas-Committee set this puppet-

In Parliament.

REMARKS

UPON THE

BILL

FOR

INCORPORATING

THE

GAS LIGHT

AND

COKE COMPANY.

LONDON:

Printed by GEORGE SIDNEY, Northumberland-street, Strand.

1809.

A
LETTER,
TO A
MEMBER OF PARLIAMENT,
FROM
Mr. William Murdock,
IN
VINDICATION
OF HIS
CHARACTER AND CLAIMS,
IN
REPLY
TO A
RECENT PUBLICATION,
BY THE
Committee
FOR
CONDUCTING THROUGH PARLIAMENT
A BILL
FOR INCORPORATING A
GAS-LIGHT & COKE COMPANY.

LONDON:

PRINTED BY GALABIN AND MARCHANT, INGRAM-COURT,
FENCHURCH-STREET.
1809.

An account of the application of the Gas from Coal to economical purposes, by Mr. WILLIAM MURDOCK, read before the Royal Society, on the 25th February, 1808, and printed in the Philosophical Transactions for that year.

The facts and results intended to be communicated in this paper, are founded upon observations made during the present winter at the Cotton Manufactory of Messrs. Phillips and Lee at Manchester, where the light obtained by the combustion of the Gas from Coal is used upon a very large scale; the Apparatus for its production and application having been prepared by me at the Works of Messrs. Boulton, Watt, and Co. at Soho.

The whole of the rooms of this Cotton Mill which I believe, the most extensive in the united Kingdom, as well as its counting houses and store rooms; and the adjacent dwelling house of Mr. Lee, are lighted with the Gas from Coal. The total quantity of light used during the hours of burning, has been ascertained by a comparison of shadows, to be about equal to the light which 2500 mould candles, of six in the pound, would give; each of the candles with which the comparison was made, consuming at the rate of $\frac{1}{10}$ of an ounce, (175 grs.) of tallow per hour.

The quantity of light is necessarily liable to some variation, from the difficulty of adjusting all the flames so as to be perfectly equal at all times. But the admirable precision and exactness with which the business of this Mill is conducted, afforded as excellent an opportunity of making the comparative trials I had in view, as is perhaps likely to be ever obtained in general practice. And the experiments being made upon so large a scale, and for a considerable period of time, may I think be assumed as a sufficiently accurate standard for determining the advan-

Nos. 12294-7 (page 612).

The invention of gas lighting.



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Auctore & Inventore IOANNE
NEPERO, Barone MER-
CHISTONII, &c.
SCOTO.



EDINBURGI,
Excudebat, Andreas Hart, 1617.

CAPVT PRIMVM.

q^a Facias quattuor virgula

1	2	3	4
1	2	3	4
2	4	6	8
3	6	9	12
4	8	12	16
5	10	15	20
6	12	18	24
7	14	21	28
8	16	24	32
9	18	27	36

q^a Facias sex virgula

1	2	3	4	5	6
1	2	3	4	5	6
2	4	6	8	10	12
3	6	9	12	15	18
4	8	12	16	20	24
5	10	15	20	25	30
6	12	18	24	30	36
7	14	21	28	35	42
8	16	24	32	40	48
9	18	27	36	45	54

q^a Facias septem virgula

1	2	3	4	5	6	7
1	2	3	4	5	6	7
2	4	6	8	10	12	14
3	6	9	12	15	18	21
4	8	12	16	20	24	28
5	10	15	20	25	30	35
6	12	18	24	30	36	42
7	14	21	28	35	42	49
8	16	24	32	40	48	56
9	18	27	36	45	54	63

q^a Facias octauis virgula

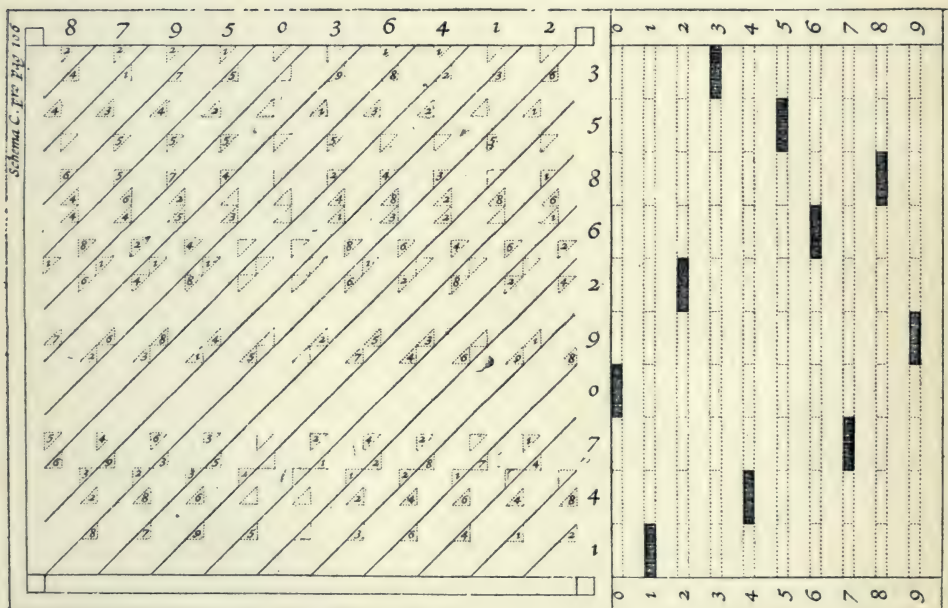
1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
2	4	6	8	10	12	14	16
3	6	9	12	15	18	21	24
4	8	12	16	20	24	28	32
5	10	15	20	25	30	35	40
6	12	18	24	30	36	42	48
7	14	21	28	35	42	49	56
8	16	24	32	40	48	56	64

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Nos. 12339-41 (page 614).

Counting by rods ('Napier's Bones').

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- 12474 ——— **On the RECURRENCE of SOLAR ECLIPSES, with Tables of Eclipses from B.C. 700 to A.D. 2300, 4to. (pp. 55), sewn, 2s 6d** *ib., 1879*
- A very interesting memoir.—*G. F. Chambers, F.R.A.S.*
- 12475 ——— **The REMINISCENCES of an ASTRONOMER, with portrait, 8vo. cl., 4s (p. 10s 6d)** 1903
- 12476 ——— **RESEARCHES on the MOTION of the MOON, made at the United States Naval Observatory, Washington: Part I: REDUCTION and DISCUSSION of OBSERVATIONS of the MOON before 1750, 4to. sewn, 6s** *Washington, 1878*
- Investigating the errors of Hansen's Lunar Tables (*q. v. ante*) as compared with observations before 1750.
- 'Newcomb further showed that small residual irregularities are still found in the moon's movements, inexplicable either by any known gravitational influence, or by any uniform value that could be assigned to secular acceleration.'—*Miss Agnes M. Clerke.*
- 12477 ——— **La THÉORIE du MOUVEMENT de la LUNE: son Histoire et son État actuel, impl. 8vo. (pp. 9), sewn, with author's inser., 1s 6d** *Roma, 1909*
- 12478 ——— **SIMON NEWCOMB: MEMORIAL ADDRESSES by Charles K. Wead, James Bryce, Milton Updegraff, R. S. Woodward, etc. etc., with portrait, roy. 8vo. (pp. 35), sewn, 1s 6d** *Washington, 1910*
- 12479 **NEWELL (Frederick Haynes) REPORT of the PROGRESS of STREAM MEASUREMENTS for 1902, 4 vols. 8vo. sewn, 4s** *U.S. Geol. Survey, Washington, 1903*
- 12480 **NEWKIRK (Burt L., Minneapolis) Eine UNTERSUCHUNG der PARALLAXE des ZENTRAL-STERNEs des RINGNEBELS in der LEIER, Inaugural-Dissertation, roy. 8vo. (pp. 37), sewn, with author's inser., 2s** *München, 1902*
- 12481 **NEWLANDS (John A. R.; F.I.C.) On the DISCOVERY of the PERIODIC LAW, and on RELATIONS among the ATOMIC WEIGHTS, with 2 folding tables, post 8vo. cl., with author's inser. (scarce), 6s 6d** 1884
- The periodic law was discovered simultaneously, but independently of one another, by the author and Prof. Lothar Meyer (*q. v. ante*), and received its classic development by Prof. Mendelejeff, who by its means predicted the existence of certain elements then unknown, which were afterwards actually discovered.
- 'I claim to have been the first to publish a list of the elements in the order of their atomic weight, and also the first to describe the periodic law, showing the existence of a simple relation between them when so arranged.'—*Preface.*
- 12482 **NEWMAN (Francis William; brother of Cardinal Newman) The DIFFICULTIES of ELEMENTARY GEOMETRY, especially those which concern the Straight Line, the Plane, and the Theory of Parallels, with 122 illustrations, 8vo. sewn (scarce), 5s** 1841
- The author was evidently ignorant of the work of Lobatschewsky, Gauss, and Bolyai on parallel lines, which he does not mention, although he quotes Legendre's treatment, and T. P. Thompson's 'proof'.
- 12483 **NEWMAN (John, philosophical instrument maker to the Royal Institution) DESCRIPTION of OSLER'S REGISTERING ANEMOMETER, with folding plate, 8vo. (pp. 9), unbound, 3s** 1840
- 12484 ——— **INSTRUCTIONS for FIXING the STANDARD BAROMETER, with woodcut, 8vo. (pp. 3), unbound, 1s** *n. d.*
- 12495 ——— **MINER'S SAFETY LAMP: an Account of his IMPROVEMENT on SIR HUMPHRY DAVY'S, with 8 woodcuts, 8vo. (pp. 10), unbound, 3s 6d** *[1835]*
- The improvement consists of the addition of an outer cylinder of wire gauze. It was awarded the silver medal by the Society of Arts.
- 12486 **NEWNHAM (Philip Hankinson, pr., F. R. MET.S.) The CLIMATE of BOURNEMOUTH, with 13 tables, 8vo. (pp. 16), sewn, 2s** *Bournemouth [1869]*

- 12488 **NEWMAN** (John, M.I.C.E.) NOTES on CYLINDER BRIDGE PIERS and the WELL SYSTEM of FOUNDATIONS; especially written for those engaged in the Construction of Bridges, Quays, Docks, River Walls, Weirs, etc., 8vo. cl., 3s (p. 6s) 1893

An enlargement of the author's calculations in designing iron cylinder bridge piers, for which he was awarded the Miller prize by the Institution of Civil Engineers.

- 12489 **NEWSHOLME** (Arthur, M.D.) The ELEMENTS of VITAL STATISTICS, with charts, thick cr. 8vo. cl., 3s 6d (p. 7s 6d) 1889

- 12490 **NEWTN** (George Samuel, F.I.C., F.C.S.) CHEMICAL LECTURE EXPERIMENTS: Non-Metallic Elements, with 224 illustrations, 8vo. cl., 2s 6d (p. 10s 6d) 1892

- 12491 ——— NEW EDITION [enlarged], with 230 illustrations, cr. 8vo. cl., 3s 6d 1908

- 12492 ——— MANUAL of CHEMICAL ANALYSIS, QUALITATIVE and QUANTITATIVE, with 100 illustrations, post 8vo. cl., 3s (p. 6s 6d) 1898

- 12493 **NEWTON** (Hubert Anson; Yale Univ.) On the CAPTURE of COMETS by PLANETS, especially their Capture by JUPITER, with diagrams, 8vo. (pp. 27), sewn, 2s [New Haven], 1891
'The researches of Tisserand, Caillaudreau, and Newton leave scarcely a doubt that the 'capture theory' represents the essential truth.'—Miss Agnes M. Clerke.

- 12494 ——— On the RELATION which the FORMER ORBITS of those METEORITES that are in our COLLECTIONS, and that were seen to FALL, had to the EARTH'S ORBIT, 2 diagrams, 8vo. (pp. 14) sewn, 2s [ib.], 1888
'He found that nearly all [falling meteorites] had been travelling with a direct movement in orbits the perihelia of which lay in the outer half of the space separating the earth from the sun.'—Eadem.

- 12495 ———, OBITUARY NOTICE of, by G[EO]RGE J[AMES] S[YMONS], F.R.S., 8vo. (pp. 6), unbound, 1s [1896]
Professor Hubert Newton, born at Sherburne, N.Y., in 1830, was one of ten children of parents of whom one was engineer of the Buffalo section of the Erie Canal and the other (born Butler) was remarkable for her mathematical attainments. He graduated with the highest mathematical honours at Yale when only twenty.

- 12496 **NEWTON** (Sir Isaac, P.R.S.) OPERA quæ exstant OMNIA, Commentariis illustrabat SAMUEL HORSLEY, R.S.S. [Episcopus Roffensis]; plates, tables, and numerous diagrams, 5 vols. 4to. contemporary tree-calf (joints cracked); RARE, £8. 15s Londini, Nichols, 1779-85

- 12497 ——— ANOTHER COPY, 5 vols. roy. 4to. contemporary tree-calf gilt (joints neatly mended); a FINE AND TALL COPY, £9. 15s

This is the only collected edition of Newton's works, now becoming increasingly rare. It was the first to contain his important *Geometric Analytica*. The following is a list of the works reprinted in it:—I. *Arithmetica Universalis*, *Tractatus de Rationibus*. Analysis per *Æquationes*. Excerpta ad *Series Fluxionesque* pertinentia. De *Quadratura Curvarum*. *Geometria Analytica*. *Methodus Differentialis*. *Enumeratio Linearum Tertii Ordinis*; II.—III. *Principia*. *Lectiones Opticæ*: IV. *Opticks*. Letters on Various Subjects. Letters to Mr. Boyle. *Tabule Colorum et Refractionum*. De *Problematis Bernoullianis*. Propositions for determining the Motions of a Body urged by two Central Forces. Four Letters to Dr. Bentley. *Commercium Epistolicum, cum Additamentis*: V. *Chronology of Ancient Kingdoms*. Short Chronicle from a MS. *Prophecies of Daniel and the Apocalypse*. Two Notable Corruptions of Scripture. There are also some original papers by the Editor, viz., *Geometria Fluxionum*; *Logistica Infinitorum*; De *Viribus Centralibus*, etc.

- 12498 ——— OPERA, EDITIO COLLECTIVA; with numerous plates, tables, and diagrams, 8 vols. 4to. uniformly bound in russet gilt, g. e. (a few joints neatly mended, but a FINE SET), £2. 12s 6d 1744-61

Besides Bp. Horsley's edition above, this was the only approximately complete and uniform edition of Newton's works ever issued. It comprises: OPERA MATHEMATICA, PHILOSOPHICA et PHILOLOGICA, collegit, recensuit, etc. Joh. Castillionius, 3 v., *Lausannæ*, '44: PRINCIPIA, studio Thomæ Le Seur et Franc. Jacquier, 3 v., *Coloniæ*, '60; ARITHMETICA UNIVERSALIS, cum Commentariis Joh. Castellionii, 2 v., *Amst.*, '61.

- 12499 ——— OPUSCULA MATHEMATICA PHILOSOPHICA et PHILOLOGICA, collegit partimque Latine vertit ac recensuit JOH. CASTILLIONEUS, Jurisconsultus [accessit Commentariolus de Vita Auctoris]; with vignette portrait by Duflos after Delamonce, 64 plates, and 2 folding tables, 3 vols. 4to. hf. vellum, or, hf. calf, 18s 6d *Lausannæ*, 1744

- 12500 ——— ANOTHER COPY, contemporary pressed white vellum (fine copy), £1. 1s

The above work contains: Analysis per *Æquationes*. *Methodus Fluxionum*. *Tractatus de Quadratura Curvarum*. *Enumeratio Linearum Tertii Ordinis*. *Methodus Differentialis*. Excerpta ex *Commercio Epistolari*. De *Mundi Systemate*. *Lectiones Opticæ*. De *Natura Acidarum*, etc. etc. etc.

PRINCIPIA:

- 12501 ———: PHILOSOPHIÆ NATURALIS PRINCIPIA MATHEMATICA. Auctore IS. NEWTON, Trin. Coll. Cantab. Soc. Matheseos Professore Lucasiano, & Societatis Regalis Sodali. Imprimatur. S. PEPYS, Reg. Soc. Præses. Julii 5. 1686, editio princeps; with folding plate, and numerous diagrams, 4to. old (? contemporary) calf, newly and very neatly rebaked, with auto. 'J. C. Willisford, August 1828' on title, (blank top margins of some ll. water-stained, and a very small hole in one page, otherwise a SOUND AND LARGE COPY, measuring $9\frac{1}{8} \times 7\frac{1}{2}$ inches), excessively rare, £18. 18s Londini, Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud plures Bibliopolas. Anno MDCLXXXVII.

THE ABOVE IS THE FIRST ISSUE OF THE FIRST EDITION. A re-issue was published in the same year with a new title, having a different imprint. This second issue is somewhat less rare than the above, although copies of either are now practically unprocurable. No copies of either can be traced as having sold at auction during the last twenty years.

The interest of the first edition of what probably constitutes the most important printed work on exact science ever published need hardly be emphasised. It should also be noted that the first edition has never been reprinted in any form.

The cost of printing the first edition was borne by EDMUND HALLEY, F.R.S., who edited and saw it through the press, and added the Latin verses reprinted in all the later editions. The idea of Mr. Samuel Pepys, F.R.S. giving the Society's imprimatur to Newton's *Principia* is tickling.

Owing to the importance of the work and the comparatively small number of copies printed, the first edition became rare almost immediately after publication. Sir David Brewster, in his *Life of Newton*, mentions (Vol. I, pp. 312 and 337): 'The impression was quickly sold. A copy of the *Principia* could scarcely be procured in 1691. . . . Cotes states in his preface to the second edition that copies of the first were scarce, and could only be obtained at an immense price. Sir William Browne, when at college, gave more than two guineas for a copy, and owing to the difficulty of procuring one at a reasonable price, the father of Dr. John Moore of Glasgow transcribed the whole work with his own hand.'

PRINCIPIA, continued:—

- 12503 **NEWTON** (Sir Isaac, P.R.S.) *PHILOSOPHIÆ NATURALIS PRINCIPIA MATHEMATICA; EDITIO SECUNDA*, auctor et emendator; *with folding plate, and numerous diagrams*, 4to. *sound and very clean copy in old calf (RARE)*, £1. 15s
Cambrægiæ, 1713

This copy bears the autograph while at Caius College of SAMUEL SHUCKFORD, afterwards Prebendary of Canterbury, and author of the 'Connexion of Sacred and Profane History', which had an extraordinary vogue of a hundred years till it was finally edited by James Talboys Wheeler, the historian of India, in 1858.

- 12504 ——— **ANOTHER COPY**, *old calf (binding slightly damaged)*, £1. 10s

- 12505 ——— **THE SAME**, *hf. calf gilt (title mounted and some ll. inked or stained)*, £1. 5s

This edition contains considerable additions by the AUTHOR, while the chapters on the lunar theory and the theory of comets were much enlarged. It was edited by ROGER COTES, F.R.S., whose preface (pp. 16), in which he vigorously attacks the Cartesian philosophy then still in vogue at the universities, and refutes an assertion that Newton's theory of attraction is a *causa occulta*, is of great historical importance. It also contains a new preface by the author, the Latin verses on him by EDMUND HALLEY, the Astronomer Royal, and an 'Index Capitum' and 'Index Rerum Alphabeticus' at end, both by the Editor. Seven hundred and fifty copies were printed of this edition, which has now also become RARE.

- 12506 ——— **EDITIO SECUNDÆ REIMPRESSIO AMSTÆLODAMENSIS** [*in titulo*:] *Editio Ultima*, auctor et emendator; *with folding plate and numerous diagrams*, 4to. *old calf (back of binding damaged, and last 18 ll. water-stained)*, 15s
Amst., sumptibus Societatis, 1714

The first Amsterdam reprint of the second edition. It was reprinted in 1723 with the addition of 'Analysis per Quantitatem Series'.

- 12507 ——— **EDITIO TERTIA [ET ULTIMA]**, aucta et emendata; *with numerous diagrams*, 4to. *sound copy in contemporary panelled calf (portrait wanting), with bookplate of Earle Bulwer [Sir Henry Bulwer, Lord Dalling, Ambassador at Washington, and concluser of the Clayton-Bulwer Treaty]*, £1. 1s
Londini, Guil. & Joh. Innys, 1726

- 12508 ——— **ANOTHER COPY**, *with portrait by G. Vertue, sound copy in old calf, newly rebacked, with auto. of Samuel Roberts, F.R.S.*, 18s 6d

- 12509 ——— **ANOTHER COPY**, *old calf (joints broken and portrait wanting)*, 12s 6d

- 12510 ——— **A Largest Paper Copy**, *printed on thick paper, with portrait at. 83 by G. Vertue after Vanderbank, folio, contemporary russia extra (back badly rubbed and slightly damaged, and joints cracked, g. e., with label of George Kennie, F.R.S. (very rare))*, £3. 10s

Less than 20 copies were printed of this edition, all of which were reserved for presentation.

* This edition, the last published during the author's life-time, and the one on which all subsequent ones are based, was edited by HENRY PEMBERTON, M.D., F.R.S., and contains a new preface by Newton, and a large number of alterations, the most important being the scholium on fluxions, and the addition of a new one on the motion of the moon's nodes, to which I may add an account of some additional experiments on the resistance of the air to bodies falling through it, and the use of some fresh astronomical observations in book III.—*W. W. R. Ball*. It also contains Halley's verses and Cotes's preface.

* Newton modified in the third edition of the *Principia* the scholium relating to fluxions, in which Leibnitz had been mentioned by name. Leibnitz and his friends had always held this scholium to be an acknowledgment of his claim to originality.—*Dr. R. T. Glazebrook, F.R.S.* See in this connexion note to No. 12570, *post*.

- 12511 ——— **REPRINT OF THE THIRD EDITION**, reprinted for SIR WILLIAM THOMSON (LORD KELVIN, P.R.S.) and HUGH BLACKBURN, Professors of Natural Philosophy and Mathematics in the University of Glasgow, *with fs. title and numerous diagrams*, 4to. *cl.* (SCARCE), £1. 5s
Glasgow, 1871

* Finding that all the Editions of the *Principia* are now out of print, we have been induced to reprint Newton's last Edition without note or comment, only introducing the 'Corrigenda' of the old copy and correcting typographical errors. W. T. H. B.—*Notice*. This reprint contains besides the author's prefaces to the three editions, the valuable introduction to the second edition by Roger Cotes, and the Latin verses by Edmund Halley.

- 12512 ——— **EDITIO NOVA**, perpetuis Commentariis illustrata, communi Studio PP. THOMÆ LE SEUR et FRANCISCI JACQUIER, Ord. Min.; *with vignettes, and numerous diagrams*, 3 vols. 4to. in 4. *sound copy in contemporary calf gilt*, £1. 5s
Genevæ, 1739-42

THE FIRST so-called 'JESUITS' EDITION', much valued for its copious commentary. 'Le professeur Calandrini, à Genève, a été l'éditeur de cet excellent commentaire et l'a enrichi de notes, de citations et de démonstrations.'—*Brunet*.

The above edition also contains in v. III the following important pieces, which gained the prize of the French Academy: *Traité sur le Flux et Reflux de la Mer*, par DANIEL BERNOULLI (pp. 133-246): *De Causa Physica Fluxus et Refluxus Maris* a COLIN MACLAURIN, S.R.S. (pp. 247-82): *Inquisitio Physica in Causam Fluxus et Refluxus Maris* a LEONARDO EULER (pp. 283-374). According to Mr. W. W. R. Ball, 'these three memoirs contain all that was done on the theory of tides between the publication of Newton's *Principia* and the investigations of Laplace.'

The text of the *Principia* is that of the third Edition.

- 12513 ——— **EDITIO ALTERA**, longè accuratior et emendatior; *with numerous diagrams*, 3 vols. 4to. *old calf gilt (a few joints cracked)*, 18s 6d
Coloniæ Allobrogum, 1760

The second 'Jesuits' Edition,' being a reprint of the first with corrections, and the memoirs on the theory of tides, but without Halley's verses.

- 12514 ——— **ANOTHER COPY**, 3 vols. in 4, *old calf (joints broken), with numerous MS. notes in a contemporary hand*, 14s

- 12515 ——— **EDITIO NOVA**, summa Cura recensita; *with numerous diagrams*, 2 vols. impl. 8vo. *hf. calf (joints cracked)*, 12s
Glasgæ, 1833

The last and best of the 'Jesuits' Editions,' edited by JOHN M. F. WRIGHT, containing all the prefaces to the first three editions, as well as the memoirs on the tides. 'Edition belle et soignée.'—*Brunet*.

- 12516 ——— **THE MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY**, translated by ANDREW MOTTE; with the LAWS of the MOON'S MOTION, according to Gravity, by JOHN MACHIN, F.R.S., *with fronts., and vignettes by the Translator, and 47 folding plates*, 2 vols. 8vo. *old calf*, 15s
Benjamin Motte, 1729

- 12517 ——— **ANOTHER COPY**, 2 vols. *old calf (fronts. wanting, binding not uniform and that of v. I damaged, also wanting fronts.)*, 10s

First edition of the first English translation of the *Principia*, 'handsomely printed', and 'a highly creditable productio n.'—*D. N. B.*

PRINCIPIA, continued:—

- 12519 **NEWTON** (Sir Isaac, P.R.S.) *THE MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY*; new Edition, with Newton's *SYSTEM of the WORLD*; a short Comment on, and Defence of, the Principia, by W. EMERSON; and *LIFE*, carefully revised and corrected by WILLIAM DAVIS, with fine bust portrait by Scriven, and 54 folding plates, besides diagrams, 3 vols. 8vo. old calf, or, hf. cl. (RARE), £1. 5s 1803
- 12520 ——— **ANOTHER COPY**, 3 vols. in 1, hf. calf, £1. 4s
- 12521 ——— **ANOTHER COPY**, 3 vols. mottled calf extra (name cut off titles, but FINE COPY), £1. 10s
This edition contains for the first time the translation of the *De Mundi Systemate*, which was not contained in the edition of 1729.
'The inconvenience arising from the great scarcity of former editions of the Principia, and System of the World, added to the exorbitant prices charged for them when to be met with, determined the Editor to undertake a New Edition of those Works.'—*Preface*.
- 12522 ——— **REPRINT of the above EDITION**, with fine bust portrait by Scriven, and 54 folding plates, 3 vols. 8vo. old hf. calf (a few joints cracked), £1. 1s 1819
- 12523 ——— **MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY, BOOK I** [Motion of Bodies], translated, and illustrated with a Commentary, by ROBERT THORP, D.D., Archdn. of Northumberland; 2nd Edition, with 22 plates, roy. 4to. russia extra, g. e., with booklabel of George Rennie, F.R.S. (fine and large copy), 12s 6d 1802
- 12524 ——— **ANOTHER COPY, boards, uncut**, 10s 6d
This translator was a member of Peterhouse, and Senior Wrangler in 1758. His Son CHARLES, pr., was the first Warden of Durham University. The above translation includes Newton's Prefaces, and Cotes's to the second Edition, and an Introduction (pp. 18) by himself.
'Newton is the new Archimedes, and the Principia forms the Novum Organum of scientific method. . . . There is hardly a progressive branch of physical and mathematical science, excepting perhaps chemistry and electricity, which has not been developed from the germs of true scientific procedure which he disclosed in the Principia and Opticks.'—*Prof. W. S. Jevons, F.R.S.*
- 12525 ——— **THE FIRST THREE SECTIONS**, with copious Notes and Illustrations, and a great Variety of Deductions and Problems, by JOHN CARR, pr., Fellow of Trinity, with 6 folding plates, Svo. cl., with auto. of C. F. Mackenzie, first Bp. of the Universities' Mission to Central Africa, 2s 6d 1821
- 12526 ——— **SECOND EDITION**, improved and enlarged, with 6 folding plates, 8vo. hf. cl., 3s 1825
- 12527 ——— **THE FIRST THREE SECTIONS and Part of the SEVENTH**, with Preface recommending a Geometrical Course of Mathematical Reading, and Introduction on the Atomic Constitution of Matter, and the Laws of Motion, by GEORGE LEIGH COOKE, pr., with 54 diagrams, 8vo. cl., 4s Oxford, 1850
- 12528 ——— **THE FIRST THREE SECTIONS**, with Appendix, and the IX. and XI. SECTIONS, edited by JOHN H. EVANS, Master of Sedbergh School, 2nd Edition, with diagrams, 8vo. hf. cl., 2s Cambridge, 1838
- 12529 ——— **FIFTH EDITION**, by P. T. MAIN, with diagrams, 12mo. cl., 2s ibidem, 1871
- 12530 ——— **SECTIONS I. II. III.**, with Notes and Illustrations, also Problems, principally intended as Examples of Newton's Methods, by PERCIVAL FROST; pr., F.R.S., with diagrams, post 8vo. cl., 3s ib., 1854
- 12531 ——— [SECOND EDITION, enlarged], with diagrams, 8vo. cl., 4s 6d ib., 1863
- 12532 ——— [THIRD EDITION], with diagrams, 8vo. cl. (cover slightly soiled), with auto. of Samuel Roberts, F.R.S., 5s 1880
- 12533 ——— **FOURTH [LAST] EDITION**, with diagrams, 8vo. cl., 6s 6d (p. 12s) 1883

OPTICS:

- 12534 [——] **OPTICKS: or a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light**; also TWO TREATISES on the Species and Magnitude of CURVILINEAR FIGURES, first edition, with 19 folding plates, 4to. hf. calf antique (VERY RARE), £2. 2s
S. Smith and B. Walford, Printers to the Royal Society, 1704
- 12535 ——— **ANOTHER COPY**, contemporary panelled calf (joints cracked, but a large and sound copy), with auto. 'Isaac Newton' on endpaper, £3. 15s
- 12536 ——— **THE SAME, A FINE COPY IN CONTEMPORARY ENGLISH RED MOROCCO EXTRA**, Harleian gold tooling on sides, g. e., £4. 4s
The above work is one of the great classics of optics. It expounds Newton's corpuscular or emission theory of light, and first contains his important optical discoveries in a collected form. The above first edition also contains two important mathematical treatises left out in the later ones, viz., 'Enumeratio Linearum III. Ordinis', and 'Tractatus de Quadratura Curvarum', containing his invention of the 'fluxional' calculus. They were here published for the first time, especially with a view to assert Newton's rights to the discovery of the calculus (of which the controversy with Leibniz was then just preparing). In his introduction to the *Tractatus* he states that he had invented the 'method' in 1665–6—thus claiming priority over Leibniz. According to the *Advertisement*, 'the ensuing discourse was written at the desire of some Gentlemen of the Royal Society, in 1675. He reveals therein also his peculiarity of shrinking from every kind of publicity, when he complains that he had delayed the printing 'to avoid being engaged in disputes about these matters'.
The last passage of the *Advertisement* is of importance in connexion with the Newton-Leibniz controversy: 'In a Letter written to Mr. Leibnitz in 1676 . . . I mentioned a Method by which I had found some general Theorems about squaring curvilinear Figures . . . And some Years ago I lent out a Manuscript containing such Theorems, and having since met with some Things copied out of it, I have on this Occasion made it publick'.
- 12537 ——— **ANOTHER COPY**, without the Two Mathematical Treatises, with 12 folding plates, 4to. old calf (joints cracked), £1. 5s [1704]
The above consists of the optical part only, with a new title, without date, place, or printer's name, but giving the author's name. This issue seems to be rare, no mention being made of it in bibliographies.

OPTICS, continued:—

Sir Isaac Newton's own corrected copy:

- 12539 NEWTON (Sir Isaac, P.R.S.) OPTICKS, SECOND [FIRST OCTAVO] EDITION, with Additions, with 12 folding plates, 8vo. old calf, joints neatly mended (FINE COPY); with MS. corrections in Sir Isaac Newton's handwriting, £25.

A. Bowyer for W. Innys, 1717

The original issue of the second edition, and printed on strong paper. It is rare thus, most copies being of the second issue of 1718. The mathematical tracts were left out in this and the following editions.

The above copy is of great interest for having belonged to Sir Isaac Newton himself, who has made additions and corrections (all verified to be in his handwriting), which were wholly or partly adopted in the later editions of the 'Opticks'. They are: on page 70, line 20: $\frac{MCa}{NGa}$ is altered

into $\frac{AD}{EPq}$ (this correction was made in the 3rd Edition). Page 230, line 19: $\frac{16\frac{1}{2}}{10000}$ is altered in text and written out on margin: $\frac{9\frac{1}{2}}{1000000}$ (corrected in the 3rd Edition). Page 271, line 14: after 'plainest' is added on margin: 'upon the

Chart, & removing the chart' (alteration not adopted). Page 275, line 15: after 'second' is added on margin: 'without quicksilver in the same angle' (addition not adopted). Page 334, line 11-12: The passage: 'that side of the same Ray which looks towards' is struck out (correction not adopted). Page 342, line 6: after 'Earth' is added on margin 'or 7 $\frac{1}{2}$ '; line 8: 14 is altered in text into 15 $\frac{1}{2}$, and on margin into 16 $\frac{1}{2}$; line 10: '21, 28 or 35' is altered in text into '22, 30 $\frac{1}{2}$, 38 $\frac{1}{2}$ ', and on margin into '23, 30 $\frac{1}{2}$, 38 $\frac{1}{2}$ '; lines 12 and 13: '70, 140, 210', is altered in text into '76 $\frac{1}{2}$, 153 $\frac{1}{2}$, 230', and on margin into '80, 160, 238' (corrections adopted slightly modified in the 4th Edition). Page 366, line 22: 'height' is struck out, and 'distance' substituted for it on margin (correction made in the 4th Edition). Page 382, line 4: after 'Benefactor' is added: 'as their ancestors did before they corrupted themselves. For the seven Precepts of the Noachides were originally the moral Law of all nations; & the first of them was to have but one supreme Lord God & not to alienate his worship; the second was not to profane his name; & the rest were to abstain from blood or homicide & from fornication (that is from incest adultery & all unlawful lusts,) & from theft & all injuries, & to be merciful even to brute beasts, & to set up magistrates for putting these laws in execution. Whence came the moral Philosophy of the ancient Greeks' (partly adopted in the third Edition, by adding after 'Benefactor': 'as their Ancestors did under the Government of Noah and his Sons before they corrupted themselves').

- 12540 — SECOND ISSUE OF THE SECOND EDITION, with 12 folding plates, 8vo. old calf, or, old calf, rebacked, 12s 6d
W. and J. Innys, 1718

In this edition the number of queries at the end of the work is increased from 16 to 31, including the celebrated one (No. 28): 'Are not all hypotheses erroneous in which Light is supposed to consist in pressure or motion propagated through a fluid medium? . . . If it consisted in pressure or in motion propagated either in an instant or in time, it would bend into the shadow. For pressure and motion cannot be propagated in a fluid in right lines beyond an obstacle which stops part of the motion, but will bend and spread every way in the quiescent medium which lies beyond the shadow.' Query 17 discusses the double refraction of Iceland spar. It also contains a new and interesting preface.

'At the end of the 3rd book I have added some Questions. And to shew that I do not take Gravity for an essential Property of Bodies, I have added one Question concerning its Cause, chusing to propose it by way of a Question, because I am not yet satisfied about it for want of Experiments.'—Advertisement II.

- 12541 — THIRD EDITION, corrected, with 12 folding plates, 8vo. old calf, or, old calf, neatly rebacked, 12s
apud eosdem, 1721

This is a literal reprint of the foregoing edition, save for a few corrections and the addition of one passage in the last sentence in the work referring to Noah and his sons, as pointed out in the note to Newton's annotated copy of the second edition (No. 12539, *supra*).

- 12542 — FOURTH [FINAL] EDITION, corrected, with 12 folding plates, 8vo. old calf, or, old calf, newly rebacked (RARE), 17s 6d
William Innys, 1730

This was the last edition revised by the Author. 'It was corrected by the Author's own hand, and left before his Death with the Bookseller. . . . It has been thought proper to make at the bottom of the Pages several Citations from thence [Lectiones Opticae], where may be found the Demonstrations, which the Author omitted in these Opticks'.—Advertisement to this Fourth Edition.

- 12543 — OPTICE: sive de Reflexionibus, Refractionibus, Inflexionibus et Coloribus Lucis Libri III, Latine reddidit SAMUEL CLARKE, A.M.; accedunt Tractatus II ejusdem Authoris de SPECIEBUS et MAGNITUDE FIGURARUM CURVILINEARUM; with 19 folding plates, 4to. contemporary calf, newly rebacked (sound and clean copy); RARE, £1. 5s Londini, S. Smith & B. Walford, 1706

- 12544 — ANOTHER COPY, old panelled calf (joints cracked, and title and some ll. somewhat stained), 18s 6d

THE FIRST LATIN EDITION, translated by Newton's disciple DR. SAMUEL CLARKE, afterwards Rector of St. James's, Westminster, whose alleged Arianism gave rise to so long a controversy. It was the first edition to contain Newton's views on the double refraction of Iceland spar, and included six more queries than the English Edition of 1704. It contains for the first time the celebrated one [No. 28] on the nature of light (*v. note to No. 12540, supra*). The translator received £500. from Newton for his work.

- 12545 — EDITIO SECUNDA, auctior; with 12 folding plates, 8vo. old calf (binding damaged), 6s
ibidem, Gul. & Joh. Innys, 1719

- 12546 — A LARGE PAPER COPY, 4to. old calf, newly rebacked, 10s 6d
Neither this nor the later editions contain the two mathematical treatises included in the edition of 1706. The queries however are extended from 22 to 30.

- 12547 — EDITIO NOVISSIMA [TERTIA]; with vignette on title, and 12 folding plates, 4to. old calf gilt (some ll. browned), 8s 6d
Lausanne, 1740

This edition has a dedication to Jean Bernoulli by the publisher, and is valuable for a copious index which it contains.

TRANSLATED BY MARAT:

- 12548 — OPTIQUE de NEWTON, Traduction Nouvelle, faite par M*** [JEAN PAUL MARAT; 'L'Ami du Peuple'] sur la dernière Edition originale. Dedicée au Roi [avec Préface], par M. BEAUZÉE, Editeur de cet Ouvrage, l'un des Quarante de l'Académie Française, etc. etc.; with 21 folding plates, 2 vols. 8vo. old hf. calf (binding rubbed, but a sound and clean copy); RARE, £1. 5s
1787

OPTICS, continued:—

- 12550 **NEWTON (Sir Isaac, P.R.S.)**: OPTIQUE de NEWTON: ANOTHER COPY of MARAT'S TRANSLATION (as fully described in No. 12548), 2 vols. 8vo. HANDSOMELY BOUND IN CONTEMPORARY FRENCH CRIMSON MOROCCO EXTRA, hand-tooled backs, silken linings and flyleaves, g. e., by DERÔME (A VERY FINE COPY), £4. 4s

This, like all the other works of this monster of the Terror, is very rare (v. Nos. 11385-91, *ante*). The 'Opticks' were previously translated into French by Pierre Coste in 1725, and reprinted in 1722. This translation appears however to have been very unsatisfactory, for the editor characterizes it as 'defectueuse, infidèle et obscure, servile et barbare'. Marat's translation is by no means a literal one, and should be of special interest, as it was Marat who first, in France, dared to attack Newton's corpuscular theory.

Marat's translation was apparently unknown to Sir David Brewster, as he only mentions that of P. Coste.

- 12551 ——— **LECTIONES OPTICÆ, Annis MDCLXIX ad MDCLXXI**, in Scholis Publicis habitæ: et nunc primum ex MSS. in Lucem editæ, editio princeps; with 24 folding plates, 4to. sewn, uncut (sound copy); RARE, £1. 1s
Londini, Guil. Innys, 1729

- 12552 ——— ANOTHER COPY, old vellum (fine copy), £1. 5s

- 12553 ——— ANOTHER COPY, contemporary calf, newly rebaked, £1. 4s

Consisting of two parts, 'de radiorum lucis refractionibus', and 'de colorum origine'. Only the first part was translated into English.

Before the end of 1669 he had worked out the details of his discovery of the decomposition of a ray of white light into rays of different colours by means of a prism. The complete explanation of the theory of the rainbow followed from this discovery. These discoveries formed the subject matter of the lectures which he delivered as Lucasian professor from 1669 to 1671. . . . The MS. of his original lectures was printed in 1729 under the title *Lectiones Opticæ*.—W. W. R. Ball.

'This valuable work contains many beautiful propositions, and interesting and instructive experiments, which are not to be met with in any modern treatise on optics.'—Sir David Brewster, F.R.S.

ARITHMETICA UNIVERSALIS:

- 12554 [——] **ARITHMETICA UNIVERSALIS**; sive de Compositione et Resolutione Arithmetica Liber, cui accessit HALLEIANA ÆQUATIONUM RADICES arithmetice inveniendi METHODUS, editio princeps; with numerous diagrams, sm. 8vo. contemporary calf (joints neatly mended, otherwise a FINE COPY), with inser. 'E Libris B: Baker Sanc: Trin: Coll: Cant. Alumni, 1707' on flyleaf, and bookplate of John Kentish (Unitarian); RARE, £1. 10s
Cantabrigiæ, 1707

- 12555 ——— ANOTHER COPY, old hf. calf gilt, £1. 8s 6d

- 12556 ——— ANOTHER COPY, contemporary panelled calf gilt (VERY SOUND AND FRESH COPY), with old engraved bookplate of John Peyto Verney, Lord Willoughby de Broke, £1. 12s 6d

This work was published by WILLIAM WHISTON, PR., F.R.S., who 'extracted a somewhat reluctant permission from Newton to print it. Among several new theorems on various points in algebra and the theory of equations Newton here enunciates the following important results. He explains that the equation whose roots are a solution of a given problem will have as many roots as there are different possible cases. . . . He extends Descartes's rule of signs to give limits to the number of imaginary roots. He uses the principle of continuity to explain how two real and unequal roots may become imaginary in passing through equality. . . . and shows that imaginary roots must occur in pairs. . . . The most interesting theorem contained in the work is his attempt to find a rule (analogous to that of Descartes for real roots) by which the number of imaginary roots of an equation can be determined.'—W. W. R. Ball.

- 12557 ——— **EDITIO SECUNDA**, in qua multa immutantur et emendantur, nonnulla adduntur; with numerous diagrams, 8vo. old calf (newly rebaked); RARE, 15s
Londini, 1722

This edition, the last published during the author's lifetime, is almost as rare as the first. It was unknown to Prof. de Morgan.

- 12558 ——— **EDITIO NOVA**, cum Commentario JOHANNIS CASTILLIONEI; with 37 folding plates, 2 vols. 4to. old calf, 10s 6d
Amstedodami, 1761

- 12559 ——— ANOTHER COPY, 2 vols., contemporary mottled calf gilt (fine copy), 14s

Besides the editor's preface (pp. 14), and the copious commentary (pp. 288), the above edition contains 'Additamentum vel de Soluti- et Constructione Æquationum, etc.: Scripta varia ex Transactionibus Philosophicis et aliunde excerpta [by EDMUND HALLEY, JOHN COLSON, ABRAHAM DE MOIVRE, COLIN MACLAURIN, A. G. KÄSTNER, K. J. BOSOVICH, and others (pp. 134)].

- 12560 [——] **UNIVERSAL ARITHMETICK**: or a Treatise of Arithmetical Composition and Resolution. To which are added, DR. HALEY'S Method of finding the Roots of Æquations Arithmetically; translated by JOSEPH RAPHSON, F.R.S., and revised and corrected by SAMUEL CUNN, first English edition, with 8 plates, sm. 8vo. old calf, newly rebaked (rare), 15s
J. Senex, 1720

- 12561 ——— **SECOND EDITION**, very much corrected, with 8 plates, 8vo. old calf, rebaked, 7s 6d
apud eundem, 1728

- 12562 ——— ANOTHER COPY, contemporary panelled calf, 8s

- 12563 ——— [THIRD AND LAST EDITION], to which is added, a TREATISE on the MEASURES of RATIOS, by JAMES MAGUIRE, the whole illustrated and explained in a Series of Notes, by THEAKER WILDER, D.D., T.C.D., with 8 plates, thick 8vo. hf. calf gilt, or, old calf, 8s 6d
1769

COMMERCIIUM EPISTOLICUM:

- 12564 ——— **COMMERCIIUM EPISTOLICUM D. JOHANNIS COLLINS** ad aliorum de ANALYSI PROMOTA: Jussu Societatis Regiæ in Lucem editum [Curâ JOANNIS KEILL, S.R.S.]; editio princeps; with diagrams, 4to. contemporary panelled calf, newly rebaked (very rare), £2. 12s 6d
Londini, Typis Pearsonianis, 1712

This is the celebrated report drawn up by order of the Royal Society, and consisting of a selection from the correspondence of John Collins, F.R.S. with some of the most celebrated mathematicians of the time, which substantiated Keill's charge against Leibniz of having derived the fundamental ideas of his calculus from papers by Newton, said to have been communicated to him through Collins and Oldenburg.

Although greatly biased in Newton's favour, the work is nevertheless 'a repository of the utmost value to the history of science' (D. N. B.), and is now excessively rare.

The above is, according to Gray's Bibliography of Newton, THE EARLIEST OF THE TWO ISSUES OF THE FIRST EDITION.

- 12565 ——— [EDITIO SECUNDA], et jam unâ cum ejusdem Recensione præmissa, et Judicio primarii, ut ferebatur. Mathematici subjuncto, iterum impressum; with diagrams, 8vo. fine and tall copy in old calf gilt (RARE). £1. 12s 6d
ibidem, J. Tonson et J. Watts, 1722

- 12566 ——— ANOTHER COPY, cl., with MS. notes by, and bookplate of, Prof. Lloyd Tanner, F.R.S., £1. 10s

The first issue of the second edition.

COMMERCIIUM EPISTOLICUM, continued:—

- 12568 **NEWTON (Sir Isaac, P.R.S.)**: COMMERCIIUM EPISTOLICUM: SECOND ISSUE OF THE SECOND EDITION, *with diagrams*, 8vo. *old calf (joints cracked)*, with 7 pp. of MS. NOTES at END IN AN XVIII. CENTURY HAND, headed 'ADDENDA', £1. 10s *Londini, J. Tonson et J. Watts, prostant venales apud Jacobum Mack-Euen, Bibliopolam Edinburgensem, 1722*

The second edition, besides being a complete reprint of that of 1712, contains a new address to the reader (pp. 6), a 'Recensio Libri qui inscriptus est Commercium Epistolicum' (pp. 59), an Appendix (pp. 2), and an 'Annotatio' (pp. 4). The address and Recensio were written by NEWTON himself—a fact first announced by Prof. de Morgan, and confirmed by Sir David Brewster. The latter did not know of the edition of 1722, and only mentions (Life of Newton, v. II, p. 75) that 'in the year 1725, a new edition of the Commercium was published.'

- 12569 — **EDITIONIS SECUNDÆ REIMPRESSIO**; *with diagrams*, 8vo. *old calf (back torn)*, with 10 pp. of MS. Index added (RARE), £1. 12s 6d *ibidem, J. Tonson et J. Watts, 1725*

FIRST ISSUE OF THE 1725 REPRINT, which agrees with that of 1722, but has a new and much fuller title.

- 12570 — **SECOND ISSUE OF THE 1725 EDITION**; *with diagrams*, 8vo. *old hf. calf (one joint cracked)*; VERY RARE, £2. 2s *ib., apud eosdem, 1725*

This was the last issue of the last edition published (save for the French reprint), and is of great interest for a cancellation in Newton's preface. In all the previous issues of the 1722 and 1725 editions occurs the passage: 'Que nova Principiorum editioni premissa sunt, Newtonus non vidit antequam Liber in lucem prodiret. Quæ de Quæstionibus Philosophicis disputata sunt D. Des Maizeaux a D. Leibnitio et aliis accepit et in lucem edidit,' with a note referring to Leibniz's letters to Des Maizeaux. In the above issue however the passage 'a. D. Leibnitio et aliis accepit' and the note is cancelled. This was probably done at the time when Newton decided to leave out of the third Edition of 1726 the Scholium referring to Leibniz (*vide note to No. 12510*).

'It is due to historical truth to state, that Newton supplied all the materials for the *Commercium Epistolicum*, and that, though Keill was its editor, and the committee of the Royal Society the authors of the Report, Newton was virtually responsible for its contents.'—*Sir David Brewster.*

- 12571 — **COMMERCIIUM EPISTOLICUM . . . ou CORRESPONDANCE de J. Collins et d'autres Savants célèbres du XVII^e Siècle relative à l'ANALYSE SUPÉRIEURE**, réimprimée sur l'Édition Originale de 1712, avec l'Indication des Variantes de l'Édition de 1722, complétée par une COLLECTION de PIÈCES JUSTIFICATIVES et de DOCUMENTS, et publiée par J. B. BIOT et F. LEFORT; *with diagrams*, 4to. *hf. calf*, 10s (p. F. 15 nett sewn) 1856

The 'pièces justificatives' are letters that seemed to support Leibniz's claims in the opinion of the editors, as well as excerpts from Cavalieri, Descartes, Fermat, Hudde, Ricci, Barrow, and Sluze, which ultimately led to the discovery of the infinitesimal calculus. At end is a chapter by Lefort (pp. 9): 'Caractère des publications du *Commercium Epistolicum* faites en 1712 et en 1722, etc. etc.'

MINOR WORKS:

PRESENTATION COPY BY THE EDITOR:

- 12572 [—] **ANALYSIS per QUANTITATUM SERIES, FLUXIONES, ac DIFFERENTIAS: cum Enumeratione Linearum Terti Ordinis** [edente GULIELMO JONES, s.r.s.], editio princeps; *with vignettes and numerous diagrams*, 4to. *old calf, with inser. by the Editor, WILLIAM JONES, F.R.S., friend of Newton (1675-1749), as below (RARE)*, £1. 5s *Londoni, 1711*

'To Dr. Cockburn by his humble Servt. Wm: Jones.'—*Inser. on flyleaf.*

- 12573 — **ANOTHER COPY, with 2 engraved tables of curves by J. Senex ADDED**, *old calf gilt*, £1. 2s 6d

FIRST edition of Newton's Treatises on the higher mathematics, containing his discovery of the differential calculus. It comprises: 'De Analysis per Equationes Infinitas' (containing the *Binomial Theorem*), 'Fragmenta Epistolarum ad D. Oldenburgum', 'De Quadratura Curvarum', 'Enumeratio Linearum Terti Ordinis', and 'Methodus Differentialis'.

'In his Latin preface Jones gives notes of the earliest applications of Newton's method, no doubt with some reference to the contest with Leibnitz which was then preparing'.—*D. N. B.*

- 12574 — **THE CHRONOLOGY OF ANCIENT KINGDOMS AMENDED**, with Short Chronicle from the First Memory of Things in Europe, to the Conquest of Persia by Alexander the Great, *first edition, with engraved vignette and 3 folding plates*, 4to. *boards, uncut*, 10s 1728

- 12575 — **A LARGE PAPER COPY, printed on thick paper**, roy. 4to. *old hf. calf (one joint cracked)*; RARE, 15s

'Containing an attempt to determine the dates of ancient events from astronomical considerations. . . Newton indicates the manner in which astronomy might be used to verify the views on the chronological points derived in the main from Ptolemy, which were held in his time. These views have since that date been proved, by the Babylonish and Egyptian records, to be on the whole correct.'—*R. T. Glazebrook, F.R.S.*

- 12576 — **EXCERPTA quædam e NEWTONI PRINCIPIIS PHILOSOPHIAE NATURALIS, cum Notis Variorum**; *with 12 folding plates*, 4to. *old calf (binding damaged)*, 4s *Cantabrigiæ, Typis academicis, 1765*

- 12577 — **ANOTHER COPY, contemporary hf. calf, uncut, with auto. of, and MS. notes and problems by, John North, Caius Coll., Cantab.**, 7s 6d

The above work was edited by JOHN JEBB, pr., M.D., F.R.S., GEORGE WOLLASTON, D.D., F.R.S., and ROBERT THORP. It has a long list of subscribers.

- 12578 — **NEUTONI GENESIS CURVARUM per UMBRAS, seu Perspectivæ Universalis Elementa**; Exemplis Coni Sectionum et Linearum Terti Ordinis illustrata [curâ PATRICII MURDOCH, D.D.]; *with 12 folding plates*, 8vo. *old calf*. 7s 6d *Londini, 1748*

- 12579 — **THE METHOD of FLUXIONS and INFINITE SERIES: with its APPLICATION to the GEOMETRY of CURVE-LINES**, translated from the Latin Original not yet made public; with a Perpetual Comment, consisting of Annotations, Illustrations, and Supplements, by JOHN COLSON, F.R.S., *first edition, with front. on copper of shooting flying, and diagrams*, 4to. *old rough calf (joints cracked)*, *with old armorial bookplate of 'Parkinson'* (RARE), £1. 1s *H. Woodfall, 1736*

- 12580 — **ANOTHER COPY, old calf (title and front. mounted), with bookstamp of Prof. Lloyd Tanner, F.R.S.**, 17s 6d

The first edition of Newton's complete treatise on the calculus, originally written in 1671. It includes a valuable preface by the editor (pp. 15), and a 'commentary' (pp. 143-339). It was reprinted in 1737 in 8vo.

H. Wallisford
August
1828.

PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

Autore *J*S. NEWTON, *Trin. Coll. Cantab. Soc. Matheseos*
Professore Lucasiano, & Societatis Regalis Sodali.

IMPRIMATUR.
S. PEPYS, *Reg. Soc. PRÆSES.*
Julii 5. 1686.

LONDINI,
Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud
plures Bibliopolas. Anno MDCLXXXVII.

No. 110 *No. 110*

No. 12501 (*page 621*).

First issue of the first edition of the greatest work on exact science
ever published.

instead of teaching the Transmigration of Souls, and to worship the Sun and Moon, and dead Heroes, they would have taught us to worship our true Author and Benefactor, as *their* ancestors did before they corrupted themselves. For the seven Precepts of the Noachides were originally the moral law of all nations, & the first of them was to ^{have} but one supreme Lord God & not to alienate his worship; the second was ~~not~~ ^{to} I ~~do not~~ ^{to} ~~forget~~ ^{forget} his name; & the rest were to abstain from fornication (that is from incest adultery & all unlawful lusts,) & from homicide, theft & all injuries, & to be merciful even to brutes, & to set up ^{magistrates} for putting these laws in execution. Whence came the morals ^{ancient} ^{of the} ^{Greeks.} Philosophy of the



MINOR WORKS, continued:—

- 12582 **NEWTON** (Sir Isaac, P.R.S.) *La MÉTHODE des FLUXIONS, et des SUITES INFINIES* [traduite par JEAN LOUIS LECLERC, COMTE DE BUFFON]; with diagrams, 4to. French boards (rare), 12s 6d
de Bure l'aîné, 1740
- 12583 — **ANOTHER COPY, old calf (binding damaged), with inser. as below, 17s 6d**
'Taken out of a French Ship which was captured by Capt. John Rogers, Dover, Commander of the Grand Faulkner, during the late French War.'—*MS. Note in pencil on title.*
Buffon's translation (the translator was unknown to Barbier) was made from Colson's English translation, but contains neither his preface nor the commentary. It includes however a very interesting preface by Buffon himself (pp. 28), in which he maintains, in opposition to the opinion of the majority of the mathematicians of his own country, that Newton is the sole and only inventor of the calculus ('on demeura convaincu que Newton seul est l'auteur de ces merveilleux calculs' [p. VI of preface]).
- 12584 — **De MUNDI SYSTEMATE, editio princeps; with 2 folding plates, 4to. contemporary calf gilt (one joint cracked, but a sound copy); RARE, 12s 6d**

Londini, impensis Tonson, Osborn et Longman, 1728

This seems to be a very rare edition, that of 1731 being generally considered the first Latin one. The latter only is mentioned in Gray's 'Bibliography of Newton'.

Prof. de Morgan's doubts as to Newton's authorship of this work were dispelled by Edleston in his *Correspondence*. It was originally meant to form the third book of the *Principia*.

- 12585 — **TREATISE of the SYSTEM of the WORLD, translated into English, printed on stout paper, with 2 plates and diagrams, 8vo. old panelled calf. 6s 6d** 1728

The first English edition, containing an interesting preface (pp. 22), which was left out in the later ones.

- 12586 — **TABLES for RENEWING and PURCHASING the LEASES of CATHEDRAL-CHURCHES and COLLEGES, according to several RATES of INTEREST, with their Construction and Use explained; also Tables for Renewing and PURCHASING the LEASES of LAND or HOUSES, etc. etc., with the Value of Church and College Leases consider'd; sixth Edition, with TABLES of INTEREST exactly computed at 3, 3½, 4, and 5 p. C., with other useful Tables, 12mo. old calf (joints cracked), 5s** 1742

- 12587 — **SEVENTH EDITION, 12mo. old sheep (binding worn and joints cracked), 5s** 1758

Although generally attributed to Sir Isaac Newton, it is very doubtful whether this work, which is not included in Horsley's edition, was ever written by him.

- 12588 — **TWO TREATISES of the QUADRATURE of CURVES, and ANALYSIS by EQUATIONS of an INFINITE NUMBER of TERMS, explained; containing the Treatises translated into English, with large Commentary, etc. etc., by JOHN STEWART, Prof. Mathematicks, Aberdeen; F.R.S., with diagrams, 4to. cl., or, old calf (rare), 15s** 1745

The only English translation of the 'Tractatus de Quadratura Curvarum' and 'Analysis per Quantitatum Series'. It contains moreover a copious commentary.

- 12589 — **THIRTEEN LETTERS from, as Representative in Parliament of the University of Cambridge, to JOHN COVEL, D.D., Vice-Chancellor, Master of Christ's College [with Notes by DAWSON TURNER], with fs. letter, roy. 8vo. sewn (scarce), 5s** 1848
Norwich, 1848

Published by Dawson Turner from the great collection of the Macro Manuscripts.

NEWTONIANA :

- 12590 **[ALGAROTTI (Francesco Conte di)] Il NEWTONIANISMO per le DAME, ovvero DIALOGHI sopra la LUCE e i COLORI, prima edizione; with front. by Pitteri after Piazzetta (hand-coloured), sm. 4to. old hf. calf (back rubbed); rare, 10s 6d** 1737
Napoli, 1737

An interesting Italian popularisation of Newton. It was translated into English (by ELIZABETH CARTER) and into French, and was unknown to Riccardi.

'Il se proposa de mettre à la portée des gens du monde les découvertes et le système de Newton, comme Fontenelle y avait mis les œuvres de Descartes. Il n'avait alors que 21 ans. Ce livre fit beaucoup de bruit, et lui fit obtenir l'honneur d'être invité par Maupertuis et Clairaut à les accompagner dans leurs expéditions scientifiques.'—*Biogr. Gén.*

- 12591 **BLOCH (Léon) La PHILOSOPHIE de NEWTON, 8vo. (pp. 644), sewn, 5s 6d (p. f. 10 nett)** 1908

- 12592 **BREWSTER (Sir David, F.R.S.) THE LIFE of SIR ISAAC NEWTON, with portrait by W. C. Edwards after Kneller, and woodcuts, 12mo. cl. (cover damaged), 3s 6d** 1831

- 12593 — **MEMOIRS of the LIFE, WRITINGS, and DISCOVERIES of SIR ISAAC NEWTON, BEST EDITION, with 2 steel portraits, and woodcuts, 2 vols. large 8vo. cl., uncut (SCARCE), 17s 6d Edin., 1855**

- 12594 — **ANOTHER COPY, 2 vols. cl. (binding slightly worn, and fronts. and titles stamped), 15s**

- 12595 — **ANOTHER COPY, 2 vols. cl. (wanting one portrait, also browned, and covers damaged), 10s 6d**

The chief authority on Newton's life. It contains appendixes of original papers, viz., letters from and to Newton, 'an Hypothesis explaining the Properties of Light discoursed in my several Papers': Drawing and Measures of the Eye of a Sheep, and Description of the Optic Nerves; Notice of Prof. Cotes; Newton's Directions to Dr. Bentley for studying the *Principia*; Newton's 15th Query; Draught Copies of the Scholium to Lemma II Book II; Table of Refractions sent to Flamsteed; 'De Metallo ad conficiendum Speculum Componendo et Fundendo', etc. etc.

- 12596 **[BROUGHAM and VAUX (Henry Peter Lord, Lord Chancellor; F.R.S.)], LIFE of SIR ISAAC NEWTON [with BIBLIOGRAPHY], 8vo. (pp. 40), sewn, 2s** 1829
L. U. K. [1829]

'Substantially a translation from the life in the 'Biographie Universelle', by M. Biot.'—*P. 1.*

- 12597 — **and Edward John ROUTH, Fellow of Peterhouse, F.R.S.: ANALYTICAL VIEW of SIR ISAAC NEWTON'S PRINCIPIA, with diagrams, 8vo. cl. (scarce), 7s 6d** 1855

'Explaining the connexion of the various parts of the *Principia* with each other, and with the preceding and subsequent progress of the science.'—*Preface.*

- 12598 **CATALOGUE of the PORTSMOUTH COLLECTION of BOOKS and PAPERS, written by, or belonging to, SIR ISAAC NEWTON, the Scientific Portion of which has been presented by the EARL of PORTSMOUTH to the UNIVERSITY of CAMBRIDGE, with diagrams, 8vo. cl. (o. p.), 4s** 1888
Univ. Press, Cambridge, 1888

This is the great mass of Newton's papers which came at his death into the hands of Mr. Conduitt, who married Catherine Barton, Newton's niece, and eventually into those of Lord Portsmouth at Hurstbourne. They were inspected and ignored by Bp. Horsley, and but little used by Sir David Brewster.

The above valuable volume has preface and appendix to preface by H. R. LUARD, PR., SIR G. GABRIEL STOKES, J. COUCH ADAMS, and G. D. LIVEING, F.R.S.

NEWTONIANA, continued:—

- CLARKE (John, Dean of Sarum)** DEMONSTRATION of some of the PRINCIPAL SECTIONS of SIR ISAAC NEWTON'S PRINCIPLES of NATURAL PHILOSOPHY (1730)—*v. No. 6927, ante.*
- 12600 **DOMCKE (Georg Peter; F.R.S.)** PHILOSOPHIA MATHEMATICA NEWTONIANA ILLUSTRATA; with 16 folding plates, 8vo. old calf (rare), 6s 6d Londoni, 1730
The book was licensed by William Whiston, who characterizes the above commentary as 'satis et feliciter'. The second Part contains: Definitiones et Leges Motus; Leges Virium Centripetarum et Theoria Attractionis seu Gravitationis Corporum in se Mutuo; Mundi Systema. The author, who is mentioned in Poggendorff, masquerades in *Allibone* as 'Domekins'.
- 12601 **EDLESTON (J., Trinity Coll., Cantab.)** CORRESPONDENCE of SIR ISAAC NEWTON and PROFESSOR [ROGER] COTES, including Letters of other eminent Men, now first published, with Appendix of UNPUBLISHED LETTERS and PAPERS by Newton, with Notes; SYNOPTICAL VIEW of his LIFE, etc. etc., with fine steel portraits and woodcuts, 8vo. cl. (scarce), 10s 6d 1850
- 12602 ——— ANOTHER COPY (binding torn), 9s 6d
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The author was a Platearther unbudgeted by Professor de Morgan.
'Locke, Condillac et leurs disciples devinrent aussi le sujet de ses attaques; par un mauvais jeu de mots, il les appelait les idiots rogues, idiologues. Les découvertes physiques ne lui inspiraient pas plus de respect: il attaqua même le système astronomique de Kopernik et de Newton, prétendant que la Terre est ronde et plate et que le Soleil tourne autour de ce plateau comme un cheval de manège.'—*Biogr. Gén.*
- 12613 **NEWTON et LEIBNITZ** [in French, English, and German], folio (pp. 3), *unbound (very rare)*, 7s 6d Pau, 1863
In this interesting letter, which was sent out to 1500 scientists, the anonymous author offers 250 francs for the publication of a certain passage in a Leibniz MS. (referred to by Dr. H. Sloman, but said to have been purposely left out in Gerhard's edition, and since then disappeared all together from its home in the Royal Library of Hanover), which would conclusively prove that Leibniz borrowed his differential calculus from a Manuscript by Sir Isaac Newton.

COMMERCIIUM

EPISTOLICUM

D. JOHANNIS COLLINS,

ET ALIORUM

DE

ANALYSI

PROMOTA:

JUSSU

SOCIETATIS REGIÆ

In lucem editum.



LONDINI:

Typis PEARSONIANIS, Anno M DCC XII.

A D

LECTOREM.

QUAM ob causam editæ sint hæ Epistolæ Chæreticæ col-
lectæ, apparebit ex Literis D. Leibnitii & D. Keilii
in fine subscriptis. Offensionem attulerant D. Leibnito
nonnullæ, quæ scripto proditi D. Keilius in Actis Londi-
nensibus anno 1708, injuriam D. Newtono oblatam propalam. Datis
igitur ad Societatis Regalis Secretarium literis, de culumina quæsus
D. Leibnitus, remedium a Societate petitis; itaque eos æquum creditis
judicaturus, ut D. Keilius culpam suam publicè faceret. D. Keil-
lio ea est pars visa potior, ut ad illa, quæ quæsus erat D. Leib-
nitius, literis scriptis responderet: Quibus in literis quæ amica elide-
rat, & expositis plenius & vindicavit. D. Leibnitus nequamvis his
factis sibi factum arbitratus, literas alteras ad Societatem dedit; in qui-
bus adhuc de D. Keillio quæsus, novum eum hominem appellat, pa-
rurumque periculum rerum antea factarum cognitorem, nec mandatum
ab eo, cuius intercessit, habentem; Societatisq; acquitati committit,
anon coercendæ sint vanæ & iniustæ vocitationes.

Verfabatur in Angliâ D. Leibnitus inveniunt anno 1673, iterumq;
mensè Octobri 1676; & interfecto illo temporis intervallo in Galliâ
egit. Quo omni temporis spatio, mutus acceptis datiq; literis, com-
muni habuit cum D. Oldenburgo, & Oldenburgi operâ, cum D. Col-
lino itidem, & nonnunquam etiam cum D. Newtono. Quid autem
ille ex Anglis tandem, vel tum cum Londinî esset, vel ex literis istis
mutatis datis, edidicerit, in eo serè certum hæc omnis quæstio. D. Ol-
denburgus & Collinius jam illa obtulerant; D. Newtonus autem tum
Cantabrigiæ egit; peritumq; amplius novit, quam quod ex literis ipsius
a D. Wallisio deinceps editis apparet. D. Newtonus argue a D. Keillii
partibus Testis esse potest, nec D. Leibnitus ipse a suis: Alius autem in
curvis Testis esse nullus. Societas itaq; Regalis, a D. Leibnito his ad-
versus

No. 12564 (page 625).

The Newton-Leibniz controversy on the invention of the calculus.

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- He propounded a twofold-motion fluid hypothesis of electricity, by which he attempted to explain electric attraction and repulsion; investigated the influence of electricity on the germination of seeds; and constructed a primitive electroscope consisting of two linen threads, which, being projected on an arc of 180°, were to show the amount of the electric charge by the rate of their angular divergence.
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- This work is numbered from page 71 to 92, with a title and dedication to the Duke of Buckingham. It was published with W. Bourne's 'Art of Shooting', 1643, but appears to have also been issued separately.
- In the dedication to the second Duke of Buckingham ('Zimri') the author complains of the 'penury of expert gunners and understanding men, and the weakness of the present meanes to breed more hereafter'.
- Neither of the above important works was known to Lowndes, who only mentions the author's 'Mathematical Appendix' (1604).
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Referring to Briggs's work on logarithms, the author in his preface mentions: 'Though we both handle the same thing, yet it is in such a different manner, that there is scarce any one proposition handled by us both.'

Between 1633 and 1635 the author measured a degree of the meridian between London and York, and in it first employed the compass to avoid deviations from the route measured—a fact unnoticed in *D. N. B.*

He was sent out by the Bermuda Company to survey the islands in 1616 (when he was accused of dishonest collusion with the Governor), and is of interest to Americans as having in 1623 patented lands in VIRGINIA, though it is doubtful whether he ever went there.

'He personally measured, partly by chain and partly by pacing, the distance between London and York, making corrections for all the windings of the way, as well as for the ascents and descents. He also, from computations of the sun's altitude, computed the difference of latitude of the two places, and so calculated the length of a degree of the meridian. Considering the roughness of his methods and the imperfection of his instruments it is not surprising that his result was some 600 yards too great; but even so it was the nearest approximation which had then been made in England.'—*D. N. B.*

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Unknown to Poggendorf and Houzeau and Lancaster, and to the author's biographer in *Allgemeine Deutsche Biographie*. The author occupied with success high judicial positions in Prussia, without however receiving the smallest payment for his services from his niggardly King.

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Verona, Sebastian dalle Donne e Giovanni Fratelli [col.] 1576
- Published six years before Pope Gregory XIII. published the Reform of the Calendar.
The work was unknown to Poggendorff, Brunet, or Graesse.
- 12881 **PADULLI (Girolamo)** Le PRINCIPALI PROPRIETÀ delle TRE CURVE CONICHE esposte e dimostrate ; with 2 plates, 4to. (pp. 48), sewn, 4s
Unknown to Riccardi and Poggendorff.
Roma, 1777
- 12882 **PAGE (Thomas, C.E., M.L.C.E.)** REPORT on the SYSTEM of WEAVING by COMPRESSED AIR in the PATENT PNEUMATIC LOOM, 4to. (pp. 19), sewn (title slightly defective), 3s 6d Cambridge, 1864
- The pneumatic loom was invented by Charles Weightman Harrison, and favourably reported on by the author, the assistant of Sir I. K. Brunel, and himself builder of Westminster new bridge, and the designer of the Albert Embankment.
- 12883 **PALACHE (Charles), and H. O. WOOD** : CRYSTALLOGRAPHIC NOTES on MINERALS from CHESTER, MASS., with plate, roy. 8vo. (pp. 12), sewn, 1s 6d
[Boston, Mass.], 1909

- 12885 **OZANAM** (Jacques; de l'Académie des Sciences) CURSUS MATHEMATICUS: or a Compleat Course of the Mathematics, VOLS. I-IV, containing I. Algebra, and the Elements of Euclid. II. Arithmetic and Trigonometry. III. Geometry and Fortification. IV. Mechanics, and Perspective, now done in English, with Additions and Corrections by Several Hands, *with numerous copperplates*, 4 vols. 8vo. *contemporary calf*, 4s 6d 1712
- 12886 [—] MÉTHODE DE LEVER les PLANS et les CARTES de TERRE et de MER, avec toutes Sortes d'Instruments et sans Instruments; nouvelle Édition; *with 16 folding copperplates of Surveying Instruments, etc.*, 16mo. *fine copy in old calf gilt*, 5s 1750
- 12887 — NOUVEAUX ÉLÉMENTS d'ALGÈBRE, ou Principes généraux, pour résoudre toutes Sortes de Problèmes de Mathématique; *with front. and diagrams*, 2 vols. 8vo. in 1, *old calf (joints cracked)*, 7s 6d Amsterdam, 1702
- 'Leibnitz parle avantageusement de cet ouvrage dans son Commercium Epistolicum avec Bernoulli, à cause de quelques méthodes algébriques utiles dans la réduction des quantités irrationnelles. Il y résoud d'ailleurs un grand nombre de questions de l'analyse indéterminée, et sur les triangles rectangles en nombres.'—Montucla.*
- 12888 — RECREATIONS MATHÉMATIQUES et PHYSIQUES, qui contiennent plusieurs Problèmes d'Arithmétique, de Géométrie, de Musique, d'Optique, de Gnomonique, de Cosmographie, de Mécanique, de Pyrotechnie, et de Physique, avec un TRAITÉ des HORLOGES ÉLÉMENTAIRES; nouvelle Édition, augmentée [par M. GRANDIN]; *with over 100 copperplates*, 4 vols. 8vo. *contemporary calf*, 12s 6d 1725, or '50
- 'Cet ouvrage curieux contient la solution d'une foule de problèmes. On y trouve encore un traité de horloges élémentaires, une dissertation sur les lampes perpétuelles, enfin un ample recueil de tours de gobelets et d'escamotage.'—Quéraud.*
- 'Best edition of an interesting work. Half the first volume is devoted to the theory of numbers, of which Ozanam was a perfect master.'—Libri Catalogue.*
- It is the final edition in the original form of this well-known work, which was afterwards almost entirely rewritten by Montucla.*
- 12889 — RECREATIONS MATHEMATICAL and PHYSICAL; laying down and solving many Profitable and Delightful Problems, of Arithmetick, Geometry, Opticks, Gnomonicks, Cosmography, Mechanicks, Physics, and Pyrotechny, done into English. *with 28 copperplates, and numerous woodcuts*, 8vo. *old calf gilt (one joint cracked, but a sound copy)*; rare, 10s 6d 1708
- 12890 — NEW EDITION, styled: RECREATIONS in MATHEMATICS and NATURAL PHILOSOPHY, lately recomposed, and greatly enlarged by J. E. MONTUCLA; and now translated, with many Additions and Observations, by CHARLES HUTTON, F.R.S., *with 98 folding plates*, 4 thick vols. 8vo. *contemporary hf. morocco* (SCARCE), £1. 1s 1803
- BEST ENGLISH EDITION of this popular work. Ozanam's work itself was based on those of Bachet de Meziriac (v. Nos. 204 and 500), Jean Leurechon ('Henri van Etten'; v. Nos. 7604-8 and 10770-4), and Mydorgue (v. No. 3170).*
- 'I believe that it would be difficult to find in any of the books current in England on mathematical amusements as many as a dozen puzzles which are not contained in one of these four volumes.'—W. W. R. Ball. The above edition has also been used, and is frequently referred to, in Mr. Ball's Mathematical Recreations and Problems.*
- 12891 — TABULÆ SINUUM, TANGENTIUM et SECANTIUM ad 10000000 Partium Radium, necnon LOGARITHMORUM, Sinuum ac Tangentium ad 100000000000 Partium Radium, 8vo. *old calf (sound copy)*, 5s Amstelodami, 1697
- 12892 — TRAITÉ des LIGNES du PREMIER GENRE, expliquées par une Méthode nouvelle et facile: TRAITÉ de la CONSTRUCTION des ÉQUATIONS, pour la Solution des PROBLÈMES INDETERMINÉZ: TRAITÉ des LIEUX GEOMÉTRIQUES, expliquez par une Méthode courte et facile; *with 34 plates*, 3 vols. 4to. in 1, *old calf gilt (back slightly rubbed)*, *with armorial bookplate of 'Lady Dowager Arundell'* (RARE), 15s 1687
- The author solves equations of a higher degree than the second by means of conic sections. The third work is a treatise on analytical geometry, while the first contains the solution of 4 'curious' problems, 'qui est de notre invention, et que je n'ay communiquée qu'à peu de personnes.'*
- 12893 — TREATISE of FORTIFICATION, containing the Ancient and Modern Method of the Construction and Defence of Places, and the Manner of Carrying on Sieges, done into English, and amended by J. T. DESAGULIERS, of Hart-Hall, Oxon. [F.R.S.] with Appendix, concerning the Manner of Fortifying, which is truly MR. VAUBAN'S: never before in English, *with 46 plates (many fold. ng)*, 8vo. *old calf (back damaged)*, 5s Oxford, 1711
- 12894 — SECOND EDITION, with PLAN of GIBRALTAR, with its Fortifications, shewing the great Strength and Use of it, *with 46 plates, and 2 folding maps*, 8vo. *old calf, neatly rebacked, with the fine gilt morocco armorial booklabel of Edward Hailstone*, 8s 6d 1727
- Gibraltar in English hands had already withstood one stiff siege in 1704-5.*
- 12895 — USAGE du COMPAS de PROPORTION, et de l'INSTRUMENT UNIVERSEL, pour résoudre promptement et très-exactement les Problèmes de la Géométrie pratique, tant sur le Papier que sur le Terrain, sans aucun Calcul, avec Traité de la Division des Champs; nouvelle Édition; *with 12 folding copperplates*, large 12mo. *sound copy in old French calf extra (rare)*, 10s 6d 1769
- The first edition containing a description of both instruments. It was unknown to Quéraud.*
- 12896 — USAGE de l'INSTRUMENT UNIVERSEL, pour résoudre promptement et très-exactement tous les Problèmes de la Géométrie pratique sans aucun Calcul, première édition; *with 2 folding plates (one illustrating the instrument)*, 12mo. *old calf gilt (rare)*, 8s 6d 1688
- The author claims to have been the first to use the instrument in all surveying operations.*
- It would be interesting to know for certain whether Ozanam the mathematician was an ancestor of the pious and gifted littérateur ANTOINE FRÉDÉRIC OZANAM, friend of Lacordaire and co-founder of the Society of St. Vincent de Paul, the centenary of whose birth was kept in Paris in April, 1913.*
- 12897 **PAGNINI** (Giovanni) COSTRUZIONE ed Uso del COMPASSO di PROPORZIONE; *with 15 plates*, 4to. *hf. cl.*, 7s 6d Napoli, 1753
- 'Si estende particolarmente nella risoluzione di molti problemi relativi all' uso di questo strumento.'—Riccardi.*
- 12898 **PALAA** (Germain, conducteur des ponts et chaussées) DICTIONNAIRE LEGISLATIF et RÉGLEMENTAIRE des CHEMINS de FER, contenant le Résumé des Documents Officiels en Vigueur et les principaux Renseignements Pratiques sur l'Etablissement, l'Entretien, la Police et l'Exploitation des Voies Ferrées, roy. 8vo. (pp. 1018), *hf. calf gilt*, 5s 1864

- 12900 **PAIXHANS** (Général Henry Joseph; *inventor of the Paixhans Gun*) NOUVELLE FORCE MARITIME, et Application de cette Force à quelques Parties du Service de l'Armée de Terre; ou Essai sur l'Etat Actuel des Moyens de la Force Maritime, sur une ESPÈCE NOUVELLE d'ARTILLERIE de MER, qui détruirait promptement les Vaisseaux de Haut-Bord, sur la Construction de Navires à Voile et à Vapeur, de Grandeur Modérée, qui armés de cette Artillerie, donneraient une Marine moins Couteuse et plus Puissante que celles Existantes, et sur la Force que le Système de Bouches-à-Feu proposé offrirait à Terre; with 7 folding plates, 4to. *sewn* (SCARCE), 15s 1822

Important as one of the first works to advocate the use of a steel armature for warships to protect them against the devastating effect of the author's gun.

- 12901 **PAJOT des CHARMES** (C., *Inspector of Manufactures*) The ART of BLEACHING PIECE GOODS, Cottons, and Threads of every Description, rendered more Easy and General by means of the OXYGENATED MURIATIC ACID, with the most certain Method of rendering Printed Goods perfectly white and colourless, and of bleaching Silk and Wool; and the DISCOVERIES made by the AUTHOR in the Art of BLEACHING PAPER, translated from the French, with Appendix [by WILLIAM NICHOLSON], with 9 folding copperplates, 8vo. boards, *uncut* (rare), 12s 6d 1799

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This valuable work, published for the ILLUSTRATION of BRITISH FOSSIL ORGANIC REMAINS, comprises contributions by Charles Darwin, Sir Richard Owen, Henri Milne-Edwards, Seales V. Wood, Edward Forbes, John Morris, Thomas Bell, William King, Thomas Davidson, Daniel Sharpe, J. W. Salter, John Phillips, Henry Woodward, P. M. Duncan, Sir E. Ray Lankester, W. Boyd Dawkins, H. A. Nicholson, L. C. Miall, and very many others.

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D. Steele, on Little Tower Hill; and R. Carr, Portsmouth, 1770-6

Containing very numerous mathematical problems, which Eighteenth Century amateurs took such remarkable pleasure in solving.

- 12904 **PALLISER** (Lt.-Col. Sir William; *inventor of the Palliser Shot*) TREATISE on COMPOUND ORDNANCE, with 5 folding plates, 8vo. cl., with author's inser. to and auto. of Sir Frederick [Joseph] Bramwell, F.R.S. (name torn off title, and one plate defective); SCARCE, £1. 1s

for private circulation [1863]

This work, which was unknown to the author's biographer in D. N. B., describes his invention of converting old smooth-bore ordnance into rifled guns by inserting tubes of coiled wrought iron—an inner tube of more ductile and an outer of less ductile metal—in cast-iron guns suitably bored out. 'Guns so treated were found on trial to give excellent results, and the method afforded means of utilizing the large stock of cast-iron smooth-bore ordnance . . . at one-third of the cost of new guns. Some thousands of these 'converted guns' have taken their place in the armament of our fortresses and coast batteries' (D. N. B.)—as built during the invasion-scare in the early 'Sixties.

Only a few copies of this work were privately printed, and it is now very scarce.

- 12905 **PALMER** (Chase; *Chemist to U.S. Geol. Survey*) The GEOCHEMICAL INTERPRETATION of WATER ANALYSES, with map and 4 folding tables, 8vo. (pp. 31), *sewn*, 1s 6d Washington, 1911

- 12906 **PALMER** (Major-Gen. Henry Spencer, R.E.) THE ORDNANCE SURVEY of the KINGDOM: its Objects, Mode of Execution, History, and present Condition, 8vo. cl., 2s 1873

- 12907 **PALMIERI** (Luigi, *Univ. Naples*) The ERUPTION of VESUVIUS in 1872, with Notes and Introduction on the present State of Knowledge of TERRESTRIAL VOLCANICITY, and the Cosmical Nature and Relations of Volcanoes and Earthquakes, by ROBERT MALLET, F.R.S.; with 8 plates, roy. 8vo. cl. (scarce), with auto. of Edward Whymper, 7s 6d 1873

Important for the editor's preface (pp. 78), in which he lays the foundation of his theory of the fracturing and folding origin of the earth's crust. The work also describes the author's seismographic apparatus and his electrometer for atmospheric electricity.

- 12908 — Der AUSBRUCH des VESUV'S vom 26. APRIL 1872, autorisirte deutsche Ausgabe, besorgt von C. RAMMELSBURG; with 7 plates, 8vo. *sewn*, 1s 6d Berlin, 1872

- 12909 **PANOT** (L., *St. Omer*) COURS sur les ARMES à FEU PORTATIVES, 4^e [dernière] Edition, considérablement augmentée; with 6 folding plates, 8vo. *hf. calf gilt* (joints rubbed), 5s 1851

- 12910 **PAPILLON** (Jean Michel, *graveur en bois*) SUPPLÉMENT au TRAITÉ HISTORIQUE et PRATIQUE de la GRAVURE en BOIS, contenant plusieurs Faits Historiques, de Nouvelles Manières, servant à perfectionner cet Art, les Arrêts rendus en Faveur de la Gravure, et une Table des Matières des trois Volumes; with woodcuts of tools and specimens, 8vo. *old calf* (joints cracked); rare, 8s 6d 1766

This supplementary volume (forming vol. III) is rare, and was unknown to Quérard and the *Biographie Générale*.

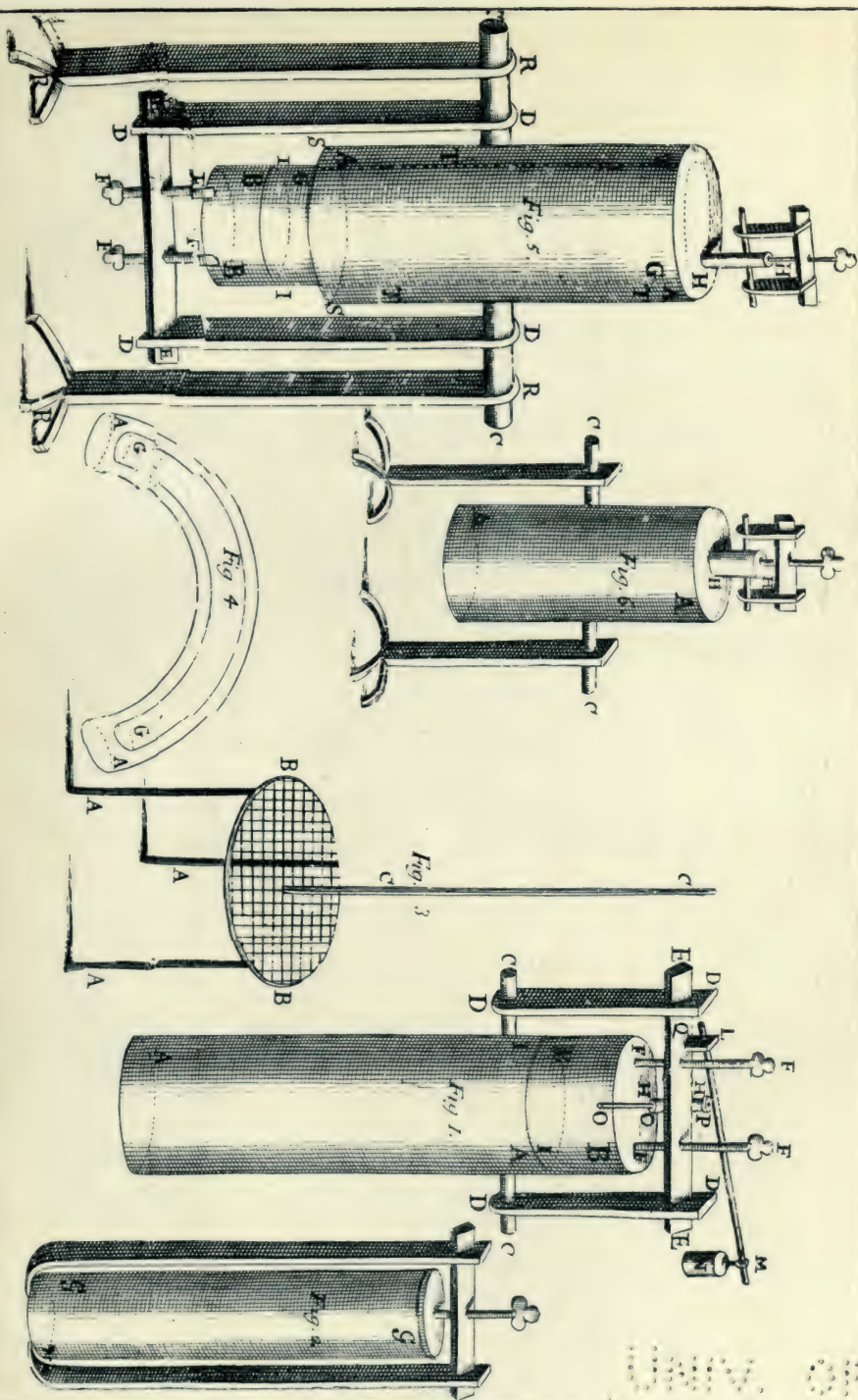
'Ce livre contient beaucoup de renseignements précieux'.—*Biogr. Gén.*

PAPIN'S DIGESTER:

- 12911 **PAPIN** (Denis, M.D.; F.R.S., *assistant to Boyle*) La MANIÈRE d'AMOLIR les Os, et de faire cuire toutes Sortes de Viands en fort peu de Temps, et à peu de Frais, avec une DESCRIPTION de la MACHINE dont il se faut servir pour cet Effet, ses Proprietez, et ses Usages, confirmez par plusieurs Experiences, nouvellement inventé; with 2 folding plates (one mended), 16mo. *contemporary calf* (back damaged), VERY RARE, £1. 15s E. Michallet, 1682

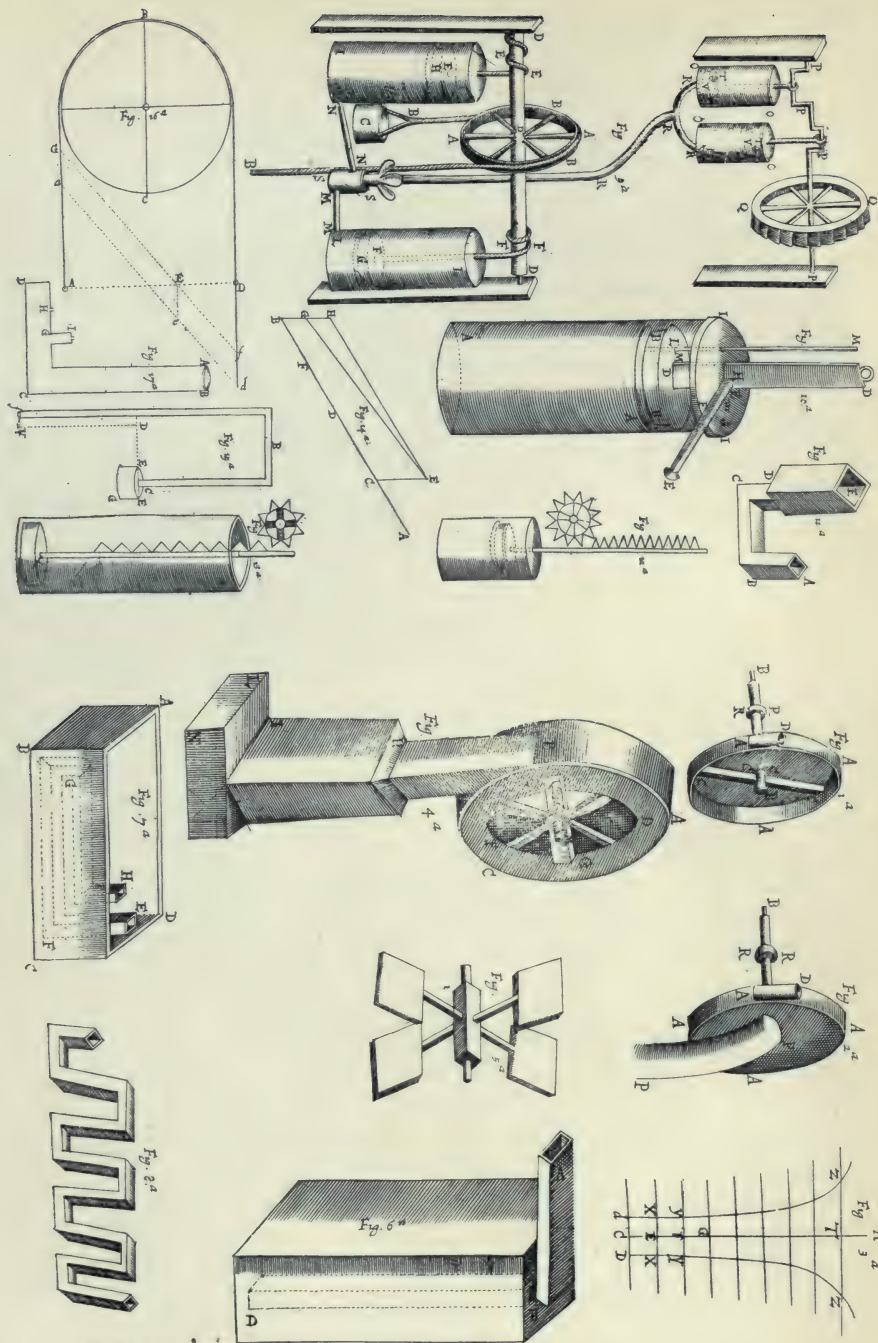
This work contains the invention of the steam digester, and, forming part of it, that of the SAFETY VALVE. The latter exerted a great influence on the progress of the steam engine, as it did not form part of the engines constructed before this (e. g. Savery's and the Marquess of Worcester's).

The work was originally published in English, in 1681, as 'The New Digester'. This French edition contains an 'Advis' by CLAUDE COMIERS, in which he describes an improved form of the digester.



No. 12911 (page 644).

Papin's Digester



No. 12932 (page 616).

An important work for the history of the steam engine.

- 12912 **PACIOLI** (Luca, *hic* Lucas de Burgo Sancti Sepulcri, *Ord. Min.*) *SUMA de ARITHMETICA GEOMETRIA PROPORTIONI & PROPORTIONALITA*, prima edizione; sig. a, surrounded by fine woodcut border, also numerous woodcuts and geometrical figures on margin after LEONARDO DA VINCI, besides large woodcut initials (the first containing the AUTHOR'S PORTRAIT), 2 vols. folio in 1, gothic letter; newly and finely bound in hf. brown polished Levant morocco gilt, rough g. e. (29 ll. margined or very neatly mended on margin, and a few ll. slightly soiled; otherwise a very fine and exceptionally tall copy, measuring $12\frac{1}{2} \times 8\frac{1}{2}$ inches); very rare, £11. 11s

[col.] Vinegia . . . Paganino de Paganini da Brescia.

M.CCCC.LXLIHJ [1494]. adi. 10. de novèbre.

- 12913 ——— ANOTHER COPY, unbound (wanting the first 9 and last 20 ll., partly water-stained, and a few ll. wormed), cheap, £2. 2s

'Certainly the FIRST PRINTED WORK ON ALGEBRA AND PROBABLY THE FIRST ON BOOK-KEEPING.'—Prof. de Morgan, *Hain-Copinger*, 4105. Proctor 5168.

There is another issue of this edition (a fact not noticed by bibliographers, e.g., Brunet or Graesse), in which the woodcut border is absent, and the fine woodcut initials are replaced by smaller ones,

- 12914 ——— [SECONDA EDIZIONE:] *SUMMA de ARITHMETICA, GEOMETRIA, PROPORTIONI, et PROPORTIONALITA*, nouamente impressa; with fine woodcut border on title and first leaf of text, and numerous fine woodcut initials (one giving the author's portrait), besides numerous diagrams on margin, folio, gothic letter; boards (last 25 ll. holed, rendering text of last 10 ll. defective; also title margined and guarded); VERY RARE, cheap, £3. 3s

[col.] per Paganino, in Tusculano sulla riva dil lago Benacense, 1523

The above second edition is as rare as the first, and perhaps preferable to it on account of its typographical execution. The author, perhaps better known as LUCA DI BORGIO [or BURGO], the name he took on entering religion, was the first to introduce symbols in algebra.

In the arithmetic Pacioli gives rules for the four simple processes, and a method for extracting square roots. He deals pretty fully with all questions connected with mercantile arithmetic, in which he works out numerous examples, and in particular discusses at great length bills of exchange and the theory of book-keeping by double entry. This part was then the first systematic exposition of algeristic arithmetic. . . . In the algebra he discusses in some detail simple and quadratic equations, and problems on numbers which lead to such equations. He mentions the Arabic classification of cubic equations, but adds that their solution appears to be as impossible as the quadrature of the circle. . . . Though much of the matter described is taken from Leonardo's *Liber Abaci*, yet the notation in which it is expressed is superior to that of Leonardo, etc. etc. etc.—*W. W. R. Ball*.

In the mathematical writings of the monk Luca Pacioli symbols began to appear. They consisted merely in abbreviations of Italian words, such as *p* for *plus*, *m* for *meno*, *co* for *cosa* . . . —Prof. Lajori.

Il y a dans ce grand recueil une méthode fort ingénieuse pour la résolution de plusieurs équations indéterminées du second ou du quatrième degré. . . . On y voit la résolution des équations dérivées du second degré, et celle de certaines équations exponentielles. Dans quelques problèmes relatifs à la règle des partis, le calcul des probabilités se montre pour la première fois. . . . Enfin on y trouve l'application de l'algèbre à la géométrie et une multitude de faits, relatifs à diverses branches des connaissances humaines et fort utiles aux personnes qui veulent étudier l'histoire des sciences. C'est, par exemple, dans un traité de commerce inséré dans cette *Somme*, que l'on trouve pour la première fois la tenue des livres en partie double, etc. etc. etc.—*G. Libri*.

- 12915 **PAGE** (David, F.G.S., *Prof. Geol.*, Durham Coll. of Science) *ADVANCED TEXT-BOOK of GEOLOGY* [with GLOSSARY (pp. 35)], 4th Edition, enlarged, with numerous woodcuts, cr. 8vo. cl., 3s (p. 7s 6d) 1867

- 12916 ——— FIFTH EDITION, enlarged, with numerous woodcuts, cr. 8vo. (pp. 488), cl., 3s 6d (p. 7s 6d) *Edin.*, 1872

- 12917 **PAGE** (James Morris, *Univ. Va.*) *On the PRIMITIVE GROUPS of TRANSFORMATIONS in SPACE of FOUR DIMENSIONS*: Inaugural Dissertation at Leipzig, roy. 4to. (pp. 54), sewn, 3s *Baltimore*, 1888

- 12918 **PAGE** (Thomas, M.I.C.E.) *REPORT on the SYSTEM of WEAVING by COMPRESSED AIR in the PATENT PNEUMATIC LOOM* [of CHARLES WEIGHTMAN HARRISON], 4to. (pp. 19), sewn, with author's inscr., 4s 6d *Cambridge*, 1864

- 12919 **PAGE** (Sir Thomas Hyde, R.E.; F.R.S.) *ESTIMATE of the EXPENSE for carrying into Execution the PLAN of EMBANKMENT for the IMPROVEMENT of the DRAINAGE of the SOUTH and MIDDLE LEVELS, and other Lands having their Drainage through the RIVER OUSE, and for the Improvement of its Navigation, etc. etc.*, with folding map, 8vo. (pp. 29), sewn, with marginal MS. notes (? by JOHN RENNIE, F.R.S.), 7s 6d 1794

He was chief engineer for forming the New Cut from Eau Brink to King's Lynn, a problem of navigation and drainage that has puzzled engineers since the time of Charles I.—*D. N. B.*

- 12920 **PAJOT des CHARMES** (C., *Inspecteur des Manufactures*) *L'ART du BLANCHIMENT des TOILES, FILS et COTONS de tout Genre, rendu plus facile et plus général, au Moyen des NOUVELLES DÉCOUVERTES, avec la Méthode de DÉCOLORER et de ramener à un État de Blancher parfait toutes les TOILES PEINTES ou IMPRIMÉES; suivi des Procédés les plus sûrs pour blanchir les Soies et les Laines, et des Découvertes faites par l'Auteur dans l'ART de BLANCHIR les PAPIERS*, première édition; with 9 folding copperplates, 8vo. hf. red morocco, by BELZ-NIEDRÉE (rare), 15s 1798

- 12921 ——— [NOUVELLE ÉDITION, corrigée]; with 9 folding copperplates, 8vo. sewn, 10s *An VIII* [1800]

Interesting as an early work describing the chlorine bleaching process, discovered by Berthollet in 1785.

- 12922 **PALMER** (Henry R., M.I.C.E.) *DESCRIPTION of a RAILWAY on a NEW PRINCIPLE*; with Observations on those hitherto constructed, and TABLE shewing the comparative Amount of RESISTANCE on several now in Use, also an Illustration of a newly observed Fact relating to the Friction of Axles, and Description of an IMPROVED DYNAMOMETER, for ascertaining the Resistance of Floating Vessels and Carriages moving on Roads and Railways; 2nd Edition, revised, with 2 folding plates, 8vo. (pp. 68), sewn (SCARCE), 15s 1824

This was perhaps the first suggestion for a monorail line, as afterwards reduced to practice on the Lartigue system, as on the Listowel and Ballybunion Railway. It was to follow the contour of the country, slightly raised on posts or trestles, the trucks being drawn by a horse walking beside it. One plate gives a general view of the line, and the other constructional details. The resistance tables are compiled from the Cheltenham, Llanelly, and other tramroads of the time.

The work is not mentioned by Allibone, nor can anything be traced concerning its author.

- 12924 **PADOVANI** (Giovanni, da Verona) VIRIDARIUM MATHEMATICORUM, in quo omnia ferè, quæ in Rebus Astronomicis desiderari possunt, facillimè pertractantur; adjecta sunt etiam INSTRUMENTA nonnulla ab eo nuper excogitata, quibus brevissimè omnia assequuntur, quæ magno Labore atque assiduis Supputationibus per Astronomicas Tabulas, ac Astrolabio, aliisque Instrumentis antea habebantur; with woodcuts, sm. 4to. sewn (binding torn off); RARE, 15s

Venetis, B. Zatterius, 1563

'Bella e rara edizione'.—Riccardi. The work is composed of the following chapters: I. De tempore. II. De computo Calendarii. III. De sphaera. IV. De arithmetica. V. De omnifariis sphaerae utilitatibus. VI. De astronomicis instrumentis.

- 12925 **PAMBOUR** (François Marie Guyonneau, Comte de) PRACTICAL TREATISE ON LOCOMOTIVE ENGINES ON RAILWAYS, with Formulæ founded on a great many NEW EXPERIMENTS on the LIVERPOOL and MANCHESTER RAILWAY, with many different Engines and considerable Trains of Carriages; with Appendix, showing the Expense of conveying Goods, by Locomotive Engines, on Railroads, first English edition, with 4 folding copperplates, 8vo. (pp. 384), cl. uncut (SCARCE), with AUTO., SOME VERSES, AND SLIGHT PENCIL SKETCH ON FLYLEAF BY WILLIAM FROUDE, F.R.S., engineer, friend of Brunel, and brother of the historian, £1. 2s 6d 1836

- 12926 ——— ANOTHER COPY, hf. calf gilt, 15s

FIRST EDITION of the first work published in England on Locomotive Engineering, containing the first extensive investigations on locomotives ever made, which became the basis of all subsequent researches. It gives copious formulæ for air-resistance, curves, fuel consumption, evaporation capacity, rail friction, the relation between speed and load, etc. etc. etc.

- 12927 ——— SECOND EDITION, increased by a great many NEW EXPERIMENTS AND RESEARCHES, with 5 folding copperplates, thick 8vo. (pp. 631), cl., with piscatorial bookplates of Buddle Atkinson, 8s 6d 1840

GEORGE RENNIE'S COPY:

- 12928 ——— ANOTHER COPY, cl., with inser. to GEORGE RENNIE, C.E., F.R.S., and interesting autograph letter (in English) from the author to Prof. Henry Moseley, F.R.S., Canon of Bristol, mentioning 'that Woolf's engines seem to be quite out of use at present in Cornwall,' 15s

- 12929 ——— THE THEORY OF THE STEAM ENGINE, showing the Inaccuracy of the Methods in Use for calculating the Effects or the Proportions of Steam Engines, and supplying a Series of PRACTICAL FORMULÆ, etc. etc. etc.; 8vo. cl., 6s 1839

- 12930 ——— THÉORIE des MACHINES à VAPEUR, Ouvrage destiné à prouver l'Inexactitude des Méthodes en Usage pour évaluer les Effets on les Proportions des Machines à Vapeur, et à y substituer une SÉRIE de FORMULES ANALYTIQUES, etc. etc. avec Appendice pour rendre parfaitement clair et facile l'Usage des Formules, 2^e Édition, augmentée d'un ATLAS, et de la Description des divers Systèmes de Machiines à Vapeur en Usage; with 24 fine plates (mostly double ones), 2 vols. 4to. hf. calf (SCARCE), £1. 5s 1844

LAST AND BEST EDITION of this valuable work, especially valued for its fine plates, which were not contained in the first edition or the English translation.

The investigations of the Count de Pambour on the theory of the steam engine were conducive to the progress of thermodynamics by pointing out the proper mode of applying mechanical principles to the expansive action of an elastic fluid.—Prof. Rankine, F.R.S.

M. de Pambour is unaccountably left out of the *Nouvelle Biographie Générale*, 1862, although, living in the midst of the Romantic Period, he was a pioneer of workaday progress in France.

- 12931 **PANAROLO** (Domenico, Romano, filosofo e medico) AEROLOGIA, cioè Discorso dell' Aria. Trattato utile per la Sanità; with etched title, and printer's device on last l.: L'ARIA CELIMONTANA; with device on title—2 vols. 18mo. in 1, old vellum, 15s

[col.] Roma, Dom. Marciiani, 1642

RARE, and unknown to Brunet, Graesse, Poggendorff, and others. The first work includes chapters 'del Vento, e che cosa sia'; 'del Numero dei Venti, Sito, e Natura loro'; 'delle Zone, Sito, e Numero di esse'; 'dei Climi, Sito, e Numero d'esse', etc.

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The work is also of great importance for containing Papin's INVENTION OF THE CENTRIFUGAL PUMP. Added is an interesting account thereon by Mr. Hodgkin, as published in *Engineering* for 1890. It was unknown to Quérard, Poggendorff, *Bioer. Gén.*, and other bibliographers, and is of great rarity.

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- 13078 — The THEORY of BALLISTIC GALVANOMETERS of LONG PERIOD, with plate and diagrams, roy. 8vo. (pp. 32), *sewn, 2s* [ib.,] 1909
- 13079 **PELETIER** [*Latine PELETARIUS*] (Jacques) In EUCLIDIS ELEMENTA GEOMETRICA DEMONSTRATIONUM Libri VI; with engraved title, and numerous diagrams, folio, *old vellum (binding mended, text browned, and blank margins wormed); rare, WITH AUTO. OF ALFONSO BORELLI, 10s 6d* Lugduni, Joan. Tornæsius et Gul. Gazezius, 1557
- 'Il ne s'est pas contenté d'interpréter Euclide, il l'a parfois corrigé heureusement.'—*Biogr. Gén.* This work also originated the famous controversy with Clavius on the angle of contingency, a full account of which may be found in Prof. Cantor's *Vorlesungen üb. Gesch. d. Math.*, Vol. II.
- 13080 — De OCCULTA PARTE NUMERORUM, quam ALGEBRAM vocant, Libri duo; with device of the fat hen on title, and numerous diagrams, sm. 4to. contemporary limp vellum (lower blank margin wormed, but a large copy), with MS. notes in a contemporary hand (RARE), £1. 5s Parisiis, G. Cavellat, 1560
- 'This is said to be the first French work on algebra. At end is a table of squares and cubes up to those of 140.'—*Prof. de Morgan.*
- 'A very ingenious and masterly composition, treating in an able manner of the several parts of the subject then known, excepting the cubic equations. But his real discoveries, or improvements, may be reduced to these three, viz. I. That the root of an equation is one of the divisors of the absolute term. II. He taught how to reduce trinomials to simple terms, by multiplying them by compound factors. III. He taught curious precepts and properties concerning square and cube numbers, and the method of constructing a series of each by addition only, namely by adding successively their several orders of differences.'—*Dr. Hutton's Tracts*, where a full account of the work may be found in Vol. II, pp. 245-9.
- 13081 **PELLETIER** (Bertrand, *de l'Institut*) MÉMOIRES et OBSERVATIONS de CHIMIE, recueillis et mis en Ordre par CHARLES PELLETIER et L. P. E. A. SÉDILLOT; with portrait, and 5 folding copperplates, 2 vols. 8vo. sound copy in contemporary hf. calf gilt (RARE), 16s 6d 1798
- The above volumes contain practically all the author's writings. He was a zealous adherent of Lavoisier, and is best known for having first prepared pure phosphuretted hydrogen, and a number of phosphor metals.
- 'Il fit bien connaître la formation de l'acide muriatique oxygéné, et ses belles recherches sur le phosphore et les phosphures métalliques contribuèrent beaucoup aux progrès de la science.'—*Biogr. Gén.*
- 13082 **PELOUZE** (Edmond) ART du BRIQUETIER, CHAUFOURNIER, et CHARBONNIER, comprenant la FABRICATION du VINAIGRE de BOIS, première édition; with 4 folding plates, 12mo. hf. calf (damaged), with bookplate of Henry B. H. Beaufoy, F.R.S., 5s 1828
- 13083 **PELOUZE** (Théophile Jules), et Edmond FREMY, Membres de l'Institut: TRAITÉ de CHIMIE Générale, Analytique, Industrielle, et Agricole, 3^e [dernière] Édition, entièrement refondue, TOME VI^e: CHIMIE ORGANIQUE, III; with woodcuts, thick roy. 8vo. boards, 3s 6d 1864
- 13034 **PELTIER** (Jean Charles Athanase) MÉMOIRE sur les DIVERSES ESPECES de BROUILLARDS, 4to. (pp. 25), *sewn, with auto. and MS. notes by Dr. T. L. Phipson, F.C.S., 5s* Bruxelles, 1842
- Added is: 'Lettre de M. Peltier adressée à l'Académie Royale de Bruxelles' (pp. 5), 8vo., referring to the above memoir, which is important in connexion with the Theory of Thunderstorms. It was awarded the prize of the Brussels Academy.
- The writer was the author of the Peltier Effect, by which he demonstrated that a galvanic current may have cooling as well as heating effects.
- 13035 **PEMBERTON** (Henry, M.D., F.R.S.), A SCHEME for a COURSE of CHYMISTRY, to be performed by, 8vo. (pp. 15), *sewn, 3s 6d* [1731]
- 13086 — A VIEW of SIR ISAAC NEWTON'S PHILOSOPHY—v. NEWTONIANA, Nos. 12617-20, ante.
- 13087 **PENDLETON** (John) OUR RAILWAYS: their Origin, Development, Incident, and Romance, with folding front. of Frith's 'Railway Station,' and numerous other illustrations, 2 vols. 8vo. hf. calf, 6s (p. £1. 4s) 1894
- 13088 **PENDULUM OBSERVATIONS**:—TABLE of PROVISIONAL EQUATORIAL VIBRATION-NUMBERS of PENDULUMS used differentially since 1800, with a Synopsis of PENDULUM OBSERVATIONS, 1672-1874, roy. 4to. (pp. 22), *sewn, 3s 6d* Calcutta, 1879

- 13090 **PEMBLE** (William; *pr.*, *Magdalen Hall, Oxon.*) A BRIEF INTRODUCTION TO GEOGRAPHY, containing a Description of the Grounds, and General Part thereof, very necessary to young Students in that Science, first edition, with woodcuts and diagrams, sm. 4to. (pp. 50), unbound (table and last 5 ll. badly defective, also waterstained); RARE, 10s 6d

Oxford, John Lichfield for Edward Forrest, 1830

First edition of this early University text-book on physical geography, which was often reprinted. It is interesting for still advocating the Ptolemean astronomy: 'The earth resteth immovable in the midst of the whole world' (p. 12). Eight pages are devoted to 'proving' this argument.

- 13091 **PENGELLY** (William; F.R.S.) THE LIGNITES AND CLAYS OF BOVEY TRACEY, DEVONSHIRE, with portrait (inserted), 2 plates, and coloured map (pp. 20): Heer (Oswald) On the FOSSIL FLORA OF BOVEY TRACEY, with 17 tinted lithographs (pp. 48), 2 vols. 4to. in 1, cl., 10s 6d [1862]

Pengelly's reputation rests especially on three arduous tasks of scientific exploration undertaken in Devonshire: the examination of the plant-bearing deposit at Bovey-Tracey [the 'Bovey Heathfield'], that of Brixham Cave, and that of Kent's Hole at Torquay. By the first large collections of fossil plants were secured; these were afterwards examined by Prof. Heer who referred them to the earlier parts of the miocene period, but at present they are more generally assigned to the middle eocene. —D. N. B.

- 13092 **PENNA** (Girolamo, Bolognese) I PRIMI ELEMENTI dell' AGRIMENSURA; with etched title, and 9 plates (some folding), Bologna, 1643: MISURA de' CORPI MISTI con sue Gravità, della Forma del p: Deposito fabricato di Marmo, Ferro, e Piombo; with engraved title and folding plate, s. l. ed. a. (slightly wormed)—2 vols. folio in 1, old limp Italian vellum, 10s 6d Bologna, 1643

'Raro.'—Riccardi.

- 13093 **PENNING** (W. Henry, F.G.S.) FIELD GEOLOGY; with Section on PALEONTOLOGY by A. J. JUKES-BROWNE, F.G.S., with coloured front., and 23 woodcuts, cr. 8vo. cl., 2s 6d (p. 6s) [1876]

- 13094 **PENNY** (Frederick, F.C.S., *Univ. Glasgow*) ON THE COMPOSITION AND PHOSPHORESCENCE OF PLATE-SULPHATE OF POTASH, 8vo. (pp. 8), sewn, 1s 6d 1855

- 13095 — ON THE ESTIMATION OF IODINE, 8vo. (pp. 4), unbound, with inscr. to Allen Thomson, F.R.S., 1s 6d [1852]

- 13096 — REPORT on the EXPERIMENTAL OPERATIONS at LOCH KATRINE, 8vo. (pp. 32), sewn, 1s 6d 1855

Investigations on the chemical action of water on lead piping, of vital importance where a drinking-water supply is derived from a catchment area of peat.

- 13097 — ON THE VALUATION AND COMPOSITION OF PROTOCHLORIDE OF TIN, 8vo. (pp. 12), unbound, 1s 6d [1851]

- 13098 —, and William WALLACE: NOTICE on CHLORIDE OF ARSENIC, 8vo. (pp. 6), unbound, with inscr. to Allen Thomson, F.R.S., 1s 6d [1852]

- 13099 **PENNY CYCLOPÆDIA** (The) of the SOCIETY for the DIFFUSION of USEFUL KNOWLEDGE, with numerous woodcuts, 27 vols. folio in 12, cl., with bookplate of Prof. Lloyd Tanner, F.R.S., £1. 1s 1833-44

Charles Knight's 'Penny Cyclopædia' was an extraordinary production, as he enlisted as contributors a large proportion of the very ablest men of the day, a great number of whose articles may be read to advantage still, in addition to their historical interest. Many of its articles on exact science by well-known writers (e.g. Prof. A. de Morgan) have never been reprinted in any other form.

- 13100 **PENROSE** (Francis Cranmer, F.R.S., F.R.I.B.A., F.R.A.S.; *Surveyor to St. Paul's*) ON A METHOD OF PREDICTING by GRAPHICAL CONSTRUCTION OCCULTATIONS OF STARS by the MOON, and SOLAR ECLIPSES, for any given Place, with more rigorous Methods of Reduction for the accurate Calculation of LONGITUDE; 2nd Edition, with 4 plates, 10y. folio, cl. (o.p.), 8s (p. 12s nett) 1902

The office of architect to St. Paul's Cathedral is only second to the blue ribbon of the profession of Architecture, that of Surveyor to Westminster Abbey, and it is notable that it has so often been combined with proficiency in the exact sciences, and especially astronomy, from Sir Christopher's day until now.

- 13101 **PEPPER** (John Henry; *exhibitor of 'Pepper's Ghost'*) CYCLOPÆDIC SCIENCE SIMPLIFIED; with coloured frontispiece and 537 woodcuts (including the Ghost), cr. 8vo. cl., g.e., 3s 6d 1869, or, n.d.

An interesting popular exposition of physics and chemistry, including portions of papers by Faraday, Daniell, Wheatstone, Brewster, Tyndall, etc. etc.

- 13102 **PEPYS** (William Hasledine, F.R.S.) ON THE RESPIRATION of the LEAVES of PLANTS, with folding plate, 4to. (pp. 4), sewn, with inscr. to Richard Phillips, F.R.S., 3s 6d 1843

From his experiments the author concludes that plants do not produce carbon dioxide when the leaf is in health. He used in these experiments the mercury gasometer, which was invented by him.

- 13103 **PERCIVAL** (Archibald Stanley, Trinity Coll., Cantab.) OPTICS: a Manual for Students, with 131 diagrams, 8vo. cl., 5s (p. 10s nett) 1899

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This work claims to be the first practical treatise on the construction of the anchor. It contains an improved anchor and anchor weight of the author's own invention.

There was no copy of the work in the Scott Library.

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- 13109 ——— **WINDING AND OVERWINDING: Descriptions of Winding Engines, Detaching Hooks, and Safety Cages**, 3rd Edition enlarged, 8vo. (pp. 26), cl., 2s *Wigan*, 1880
- 13110 **PERCY** (John, M.D., F.R.S.) **On the IMPORTANCE of SPECIAL KNOWLEDGE to the PRACTICAL METALLURGIST**, 8vo. (pp. 25), sewn, 1s 6d 1852
- 13111 ——— **METALLURGY: FUEL, FIRE-CLAYS, COPPER, ZINC, BRASS, etc.**, with 152 woodcuts, 8vo. cl., uncut (SCARCE), 15s 1861
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The exceedingly important Thomas-Gilchrist process for making Bessemer steel from iron-ores containing phosphorus was an outcome of this work (pp. 815, 818-19, and was discovered by his pupils.—D. N. B. The work has been out of print for many years, and is now very scarce. It also contains the result of the analysis of a large number of specimens of iron and steel, collected by S. H. Blackwell, and now in the Jernyn Street Museum.
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'It is very interesting both for the history of arithmetic and banking.'—*Libri Catalogue*.
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Containing original experiments. The author found *inter alia* that he could produce 'highly elastic steam' by injecting heated water into superheated steam. The above pamphlet was unknown to Poggenдорff.
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The above work was awarded the prize of the Société des Arts de Genève.
- 13139 **PERRIER** (Col. François; de l'Institut, Chef du Service Géodésique) DÉTERMINATION des LONGITUDES, LATITUDES, et AZIMUTS TERRESTRES en ALGÉRIE; with 19 plates and maps (including 4 fine photochromotypes), 3 vols. 4to. in 1, hf. roan, cl. sides, £1. 5s (p. F. 60 nett unbound) Imprimerie Nationale, 1877-80
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The author was celebrated as a builder of the masonry bridges of which France has so many noble examples; his best being that described above, which crossed the Seine at Neuilly, and consisted of 5 arches of a length of over 150 feet each.
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'Rare.'—Quérard. 'Perronet fut pour les ponts et chaussées un de ces génies créateurs dont l'apparition fait époque et qui donnent pour longtemps l'impulsion.'—Biogr. Gén.
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The failures of reinforced concrete have yet to be chronicled.
- 13146 **PESSUTI** (Abate Gioacchino) DESCRIZIONE, MANEGGIO ed USI del TEODOLITO, Istrumento più di qualunque altro Sicuro Spedito ed Universale, with large folding copperplate, 8vo. boards (plate water-stained), 5s Roma, 1794
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'Sur l'hydraulique il a laissé des travaux remarquables.'—Biogr. Gén., where the first treatise only is mentioned. Neither was known to Riccati.
- 13149 ——— RIFLESSIONI ANALITICHE sopra una Lettera dal ABATE CONTE VINCENZO RICCATI; with plate, 8vo. *sewn*, 4s 6d Livorno, 1777
The work deals with imaginary numbers. Riccati's letter is included in it.

- 13151 **PERRY** (Jevon James Muschamp, pr.; F.R.A.S.) OBSERVATIONS and MEASUREMENTS on DOUBLE STARS, made at St. Paul's Vicarage, Alnwick, with 18" Silvered Glass Reflector, between 1880 and 1884, a Manuscript on 43 ll., with 4 original sketches of comets, 4to. hf. bound, 5s [1880-4]
- 13152 ——— ORIGINAL WATER-COLOUR DRAWINGS of JUPITER, 19 well-executed drawings, sketched between 1880 and 1884, with explanatory MS. Notes, in 4to. Album, cl., 8s 6d [1880-4]
- These drawings are interesting in connexion with the 'Great Red Spot' of Jupiter, which originally suggested them. As in the foregoing work, the author used an 18" silvered reflector, made by With of Hereford for Henry Cooper Key, pr., F.R.A.S., in 1878, which he describes as 'one of the finest 18" mirrors in existence'.
- 13153 **PERRY** (Capt. John) ACCOUNT of the STOPPING of DAGGENHAM BREACH, with the Accidents that have attended the same from the first Undertaking, with proper RULES for PERFORMING any the like WORK, and Proposals for rendering the PORTS of DOVER and DUBLIN (which the Author has been employ'd to Survey) commodious for entertaining LARGE SHIPS, with large coloured MS. plan of levels overflowed by the breach, 8vo. old calf (back slightly damaged, and 2 ll. in a neat contemporary MS.); RARE, £1. 1s 1721
- 'This book was bought by Mr. [ROBERT] MYLNE [F.R.S. (1734-1801)], Surveyor to Blackfriars Bridge, at the sale of Admiral Henry Norris's effects & presented by him to L. Henderson who transfers his title to Mr. [WILLIAM] CHAPMAN [C. E. (1749-1832)]. Dublin, 1792. W. C. to E. W. C.—Inscr. on flyleaf.
- 'In 1714, tenders being invited to stop the breach in the Thames embankment at Dagenham in Essex, Perry offered to do the work for £25,000. The contract was, however, given to William Boswell, who asked only £10,300. Boswell having found his task impossible, the work was entrusted to Perry in 1715. He completed it successfully in five years' time; but the expenses so far exceeded anticipation that, though an extra sum of £15,000. was granted to him by parliament, and a sum of £1,000. presented to him by the local gentry, Perry gained no profit by the transaction. He published an account thereof in 'An Account' etc. (supra).—D. N. B.
- He had a singularly chequered career. As a commander of the fireship Cygnet he surrendered after a very slight resistance to a French privateer. He was court-martialled for dereliction of duty in not setting fire to his ship before the Frenchmen boarded her, found guilty, and sentenced to a fine of £1,000. and ten years' imprisonment in the Marshalsea. In 1698 he proceeded to Russia, engaged by the TSAR PETER, to superintend the naval and engineering works in that country, to leave fourteen years later afraid for his life after humbly reminding the Great Tsar that he had only paid him one year's salary. Subsequently he embarked upon the above unlucky venture (D. N. B.).
- 13154 **PERRY** (John, F.R.S.; Roy. College of Science) APPLIED MECHANICS: a Treatise for Students who have Time to work Experimental, Numerical, and Graphical Exercises, with 371 illustrations, cr. 8vo. cl., with booklabel of, and a few MS. notes by, F. J. Jervis-Smith, pr., F.R.S., and author's auto., 3s 6d 1897
- 13155 ——— NEW [LATEST] Edition, enlarged, with 372 illustrations, cr. 8vo. cl., 4s 6d 1909
- 13156 ——— The CALCULUS for ENGINEERS, with 106 diagrams, cr. 8vo. cl., 3s 6d (p. 7s 6d) 1897
- 13157 ——— TENTH IMPRESSION [revised, with Appendix], with 106 diagrams, cr. 8vo. cl., 4s 6d [1910]
- An excellent manual for those who have only an elementary knowledge of algebra and trigonometry.
- 13158 ——— ENGLAND'S NEGLECT OF SCIENCE, 8vo. cl., 1s 6d 1900
- 13159 ——— LONG-DISTANCE TELEPHONY, 8vo. (pp. 8), sewn, 1s 6d 1893
- 13160 ——— SPINNING TOPS, with 59 illustrations, cr. 8vo. cl., 1s 6d S.P.C.K., 1890
- 13161 ——— The STEAM ENGINE and GAS and OIL ENGINES: a Book for Students who have Time to make Experiments and Calculations [new Edition, corrected], with 325 illustrations, 8vo. cl., 4s 6d (7s 6d nett) 1904
- 13162 ——— The TEACHING of MATHEMATICS, with Discussion, before the British Association, Glasgow, 1901, post 8vo. cl. boards, with author's inscr., 2s 6d 1901
- Added are: Remarks, by G. B. MATTHEWS, F.R.S. (pp. 6), and 'The Cultivation of the Mathematical Imagination', by MARY EVEREST BOOLE, Colchester, n. d.
- 13163 ———, J. GRAHAM, and C. W. HEATH: LIQUID FRICTION, with folding plate, 8vo. (pp. 18), sewn, with Prof. Perry's inscr., 1s 6d [1893]
- 13164 **PERRY** (Stephen Joseph, S.J., F.R.S.) REPORT of the OBSERVATIONS of the TOTAL SOLAR ECLIPSE of August 29, 1886, made at the Island of CARRIACOU, with plate and diagram, roy. 4to. (pp. 12), sewn, with author's inscr., 1s 6d 1889
- 13165 **PETAU** (Denis, Latine Dionysius Petavius, S.J.) URANOLOGION, sive SYSTEMA variorum AUTHORUM, qui de SPHERA, ac SIDERIBUS, eorumque MOTIBUS Græcè commentati sunt: GEMINUS et ACHILLES TATIUS, HIPPARCHUS, PTOLEMÆUS, THEODORUSGAZA, MAXIMUS, ISAACUS ARGYRUS, S. ANDREAS CRETENSIS. Omnia vel GRÆCÆ ac LATINÆ nunc primum edita, vel antè non edita; accesserunt variorum Dissertationum Libri VIII; with vignette on title and diagrams, thick roy. folio, old vellum (fine copy); RARE, £1. 10s Lutetie Paris., S. Cramoisy, 1630
- Dedicated to Cardinal Richelieu, and valuable for a first containing some of the authors mentioned in the title. The work was reprinted in Amsterdam, 1708.
- 'Il fut admiré de son temps, au point qu'on frappa en son honneur une médaille avec ses mots: Au prince des chronologistes.'—Bior., Gén.
- 13166 **PETERMANN** (Andreas, Univ. Leipzig) OPUSCULA MEDICA atque CHIMICA, olim separatim, nunc vero conjunctim edita, eorum Usui apprime inservientia qui Arti huic salubriori noviter se manciparunt; with portrait, large 12mo. old calf gilt, 4s Lipsie, 1750
- Nothing appears to be known of the author, who is not mentioned by Poggendorff, Kopp, and others.
- 13167 **PETERS** (Christian August Friedrich; Sternwarte Altona) NUMERUS CONSTANS NUTATIONIS, ex ASCENSIONIBUS RECTIS STELLÆ POLARIS, in Specula Dorpatensi Annis 1822 ad 1838 Observatis deductus; adjecta est Disquisitio Theoretica de FORMULA NUTATIONIS, 4to. (pp. 103), sewn, 5s St. Petersburg [Petrograd], 1843
- 13168 **PETERS** (Christian Heinrich Friedrich; Director of the Observatory, Clinton, N.Y.) FLAMSTEED'S STARS 'OBSERVED, but not EXISTING', 4to. (pp. 15), sewn, 1s 6d [Washington,] 1885
- 13169 ——— RESULTATE aus PENDELBEOBSACHTUNGEN. I. und III. ABTHEILUNG: BESTIMMUNG der Länge des einfachen Sekundenpendels in Altona und Königsberg, 2 parts 4to. (pp. 25), sewn. 3s [Kiel, 1880-1]

- 13171 **PETETIN** (Jacques Henri Désiré, M.D.) NOUVEAU MÉCANISME de l'ÉLECTRICITÉ, fondé sur les Lois de l'Équilibre et du Mouvement, démontré par des EXPÉRIENCES qui RENVERSENT le SYSTÈME de l'ÉLECTRICITÉ POSITIVE et NÉGATIVE; et qui établissent ses Rapports avec le Mécanisme Caché de l'AIMANT, dont il explique les principaux Phénomènes: et l'heureuse Influence du Fluide Électrique dans le Traitement des Maladies Nerveuses; with 10 folding plates, 8vo. *sewn*, 8s 6d
Lyon, An 10 [1802]
Interesting for giving experiments to trace the connexion between electricity and magnetism.

- 13172 **PETIT** (Emma Gentille) PLAYING at SCIENCE [in Verse]: Recollections of a Course of Lectures on Geology, Astronomy, etc., given by the Rector of St. Michael's, Lichfield, 3 parts 8vo. *sewn*, 3s 6d
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- Lichfield scientific poetry almost suggesting a reincarnation of Erasmus Darwin.
13173 **PETIT** (Robert) How to BUILD an AEROPLANE; translated by T. O'B. HUBBARD and J. H. LEDEBOER, 2nd Edition, with 93 illustrations, 8vo. *cl.*, 2s
1911

- 13174 **PETRI** (Nicolas, Deventer) PRACTIQUE, om te LEEREN REKENEN, CYPHEREN, ende BOECKHOEWEN, met die REGEL COSS, ende GEOMETRIE seer profytelijcken voor allen Cooplyden, van nieus [sic] gecorrigeert ende vermeerderd; with finely engraved portrait by H. GOLTZIUS, 2 folding plates, and numerous diagrams, 4 parts 12mo. in 1, black letter; old white vellum (F. 194 wanting); RARE, £1. 15s
z. p. [? Amsterdam], 1591

Unknown to Poggeadorff, Graesse, Brunet, and others.

Petri published an excellent treatise, which went through four [recte five] editions. It deals with arithmetic and geometry, as well as with book-keeping, and treats the subject succinctly and well. The improvements in the matter of stock-taking and of making a periodical trial-balance are incorporated. . . . Petri introduces for the first time two important departures from the older methods. . . . He no longer journalises all transactions *seriatim*, but occasionally groups the kindred items . . . and takes a step towards the separation of the books of primary entry. He introduces an 'Expenses-Book', and at the end of every month transfers the total to cash account by means of the journal. . . . Petri's book is truly one of primary entry.—Richard Brown.

The above edition was unknown to Mr. Brown, who only quotes those of 1588, 1595, 1596, and 1605. Prof. de Morgan only knew that of 1596.

- 13175 **PETTERSON** (Oscar, Univ. Stockholm) NILSON MEMORIAL LECTURE, with portrait, 8vo.
(pp. 18), *sewn*, 1s 6d

Lars Frederik Nilson, F.R.S., was not only one of the greatest Swedish chemists of his time, but his beautiful native island of Gothland owes to him its present position as a great producer of sugar-beet.

- 13176 **PETTERSON** (Sven Otto; Univ. Stockholm) EXPERIMENTELLE METHODEN und UNTERSUCHUNGEN in der PHYSIKALISCHEN CHEMIE. I—VI; with 2 folding plates, 4to. (pp. 44), *sewn*, 3s 6d
Upsala, 1879

'Of more importance have been the researches made with the object of determining melting point and heat of solidification [*supra*], e. g. those of Petterson and Nilson.'—Prof. E. v. Meyer.

- 13177 ——— UNTERSUCHUNGEN über die MOLEKÜLARVOLUMINA einiger Reihen von isomorphen Salzen, 4to. (pp. 45), *sewn*, 3s 6d
ibidem, 1873

- 13178 **PETTIGREW** (James Bell, M.D., F.R.S.) ANIMAL LOCOMOTION, or Walking, Swimming, and Flying; with a DISSERTATION on AERONAUTICS, 2nd Edition, with 3 plates and 130 woodcuts, cr. 8vo. *cl.*, 2s 6d (p. 5s)
1874

- 13179 **PETTUS** (Sir John; F.R.S., M.P., Deputy Governor of the Royal Mines) FLETA MINOR: the Laws of Art and Nature in Knowing, Judging, ASSAYING, FINING, REFINING and Inlarging the Bodies of confin'd METALS, in Two Parts. I. ASSAYS of LAZARUS ERCKERN [sic], Chief Prover (or Assay-Master General of the Empire of Germany), in V. Books: originally written by him in the Teutonic Language, and now translated into English. II. ESSAYS on METALLICK WORDS, as a Dictionary to many pleasing Discourses, first edition, with fine portrait *et.* 70 by R. WHITE, and 43 fine engravings on copper of metallurgical processes, large folio, FINE and EXCEPTIONALLY LARGE COPY in contemporary English calf (RARE), £3. 3s

printed for the author, by Thomas Dawks, 1683

Copies having the portrait are especially rare. It is different from that in the *Fodineæ* and less comely, as he has developed an aggressive Roman nose. The above copy is unusually tall, and probably on Large Paper, although Lowndes does not mention such.

- 13180 ——— ANOTHER COPY, contemporary calf, rebaked (portrait wanting, but a FINE and TALL COPY), £1. 12s 6d

- 13181 ——— ANOTHER COPY, also wanting the portrait, new hf. calf antique, £1. 11s 6d

The first 377 pp. contain the only English translation ever published of Ercker's classic work. (v. No. 7592, *ante*). The dictionary of mining terms is the first published in the language.

- 13182 ——— REPRINT, with 43 fine engravings on copper, folio, old calf, newly rebaked (portrait wanting and title mounted, but a large copy), £1. 5s
Stephen Bateman, 1685

- 13183 ——— FODINÆ REGALES: or the HISTORY, LAWS, and PLACES of the CHIEF MINES and MINERAL WORKS in ENGLAND, WALES, and the ENGLISH PALE in IRELAND; as also of the MINT and MONY; with a Clavis explaining some difficult Words relating to Mines, etc., with beautiful PORTRAIT BY W. SHERWIN (splendid impression), and 4 fine engravings on copper (2 full-page of Mines), folio, old calf (small part of blank margin torn out of portrait, but a LARGE and SOUND COPY); VERY RARE, £2. 12s 6d
T. Basset, 1670

This rare work is very valuable for giving an account of the state of mining in England during the XVIIth. Century. It was undertaken at the request of Prince Rupert and Lord Shaftesbury. Large extracts from it are given in Hunt's 'British Mining.'

The fine portrait is to be found only in a few copies of the work, it having evidently been subject to the ravages of the grangerizer or print-seller of the past. It is of a much earlier period of his life than that to the 'Fleta Minor' (*supra*), and is not mentioned in D. N. B.

- 13184 ——— REPRINT of the FIRST PART, 12mo. *sewn* (hole through last 6 ll.), 12s 6d F. Collins, 1706
Added to the above is: 'OBSERVATIONS made by J. H. mostly in the year 1706' (pp. 1-106, without title), which deals chiefly on CORNISH MINING.

- 13185 **PEWTNER** (W.) COMPREHENSIVE SPECIFIER: a Guide to the Practical Specification of every Kind of Building-Artificers' Work, edited by WILLIAM YOUNG, cr. 8vo. *cl.*, 2s (p. 6s)
1870

- 13187 **PETTY** (Sir William, F.R.S.) THE DISCOURSE made before the ROYAL SOCIETY the 26. of November 1674 concerning the USE of DUPLICATE PROPORTION in sundry Important Particulars; with a NEW HYPOTHESIS of SPRINGING or ELASTIQUE MOTIONS, 24mo. *contemporary calf (blank portion of last l. missing, some ll. waterstained, and title soiled)*; RARE, 15s

John Martyn, Printer to the Royal Soc., 1674

Interesting for containing some extraordinary and interesting speculations in molecular physics. In his dedication to the Duke of Newcastle the author states the work to contain three parts: 'I. an Endeavour to explain the intricate Notions, or *Philosophia Prima* of Place, Time, Motion, and Electricity; II. to excite the World to the study of a little Mathematicks by shewing the use of Duplicate Proportions in some of the most weighty of Humane Affairs; III. Chymical Speculations, to consider such points and proportions, even in *Atoms* (such, whereof perhaps a Million do not make up one visible *Corpusculum*.) as may give an intelligent Account of the Nexure, Mixtures, and Mobilities of all parts of the Universe.'

- 13188 **PETZOLDT** (Georg Paul Alexander; *Univ. Dorpat*) Die AGRIKULTURCHEMIE in populären Vorlesungen, 2. umgearbeitete Auflage; *with woodcuts*, 8vo. *sewn*, 2s Leipzig, 1846

- 13189 ——— LECTURES to FARMERS on AGRICULTURAL CHEMISTRY, post 8vo. *cl.*, 2s 6d 1845

- 13190 **PETZVAL** (Joseph) INTEGRATION der LINEAREN DIFFERENTIALGLEICHUNGEN mit CONSTANTEN und VERÄNDERLICHEN COEFFICIENTEN, LIEFERUNG 1-3; *with plate*, in one vol. 4to. *hf. calf neat*, 7s 6d (p. M. 28.30 *sewn*) Wien, 1851-5

- 13191 **PEUERBACH**, *Latine* PURBACHIUS (Georg) THEORICÆ NOVE PLANETARUM, ab ERASMO REINHOLDO Salueldensi pluribus Figuris auctæ, et illustratæ Scholiis, quibus studiosi præparentur, ac inuitentur ad Lectionem ipsius PTOLEMÆI; recens editæ et auctæ novis Scholiis in Theoria Solis ab ipso Autore Incerta item METHODICA TRACTATIO de ILLUMINATIONE LUNÆ; *with 3 plates and numerous other woodcuts and diagrams*, 12mo. *old vellum (one corner partly water-stained, otherwise a very sound and clean copy)*, 18s 6d Parisiis, C. Perier, 1557

The editor, Erasmus Reinhold, was professor of higher mathematics in the University of Wittenberg, and, according to Poggendorff, one of the first adherents of the Copernican system, and the first to mention, in the above work, the camera obscura, but in an imperfect state (v. PORTA, A.O. 18517 *post*). At end is: Theoria Motus Octavæ Sphæræ.

- 13192 ——— TRACTATUS super PROPOSITIONES PTOLEMÆI de SINUBUS et CHORDIS; item COMPOSITIO TABULARUM SINUM per JOANNEM de REGIOMONTE, cum TABULIS SINUM DUPLICES per eundem REGIOMONTANUM, editio princeps; *with diagrams*, folio, *parchment (water-stained, but a sound copy)*; RARE, £1. 1s Norimbergæ, Johan. Petreius, 1541

The first satisfactory table of sines ever published, and one of the author's most celebrated works. A full account of it will be found in Prof. Cantor's *Vorlesungen über Geschichte der Mathematik*, Vol. II.

Les deux hommes à qui les mathématiques doivent le plus dans le XV^e siècle, sont Purbach et Regiomontanus. Ce ne sera pas concevoir d'eux une idée trop avantageuse, que de les regarder les vrais rateurs de ses sciences, et surtout de l'astronomie. — Montucla.

The author was a native of Peuerbach, a market town of Upper Austria, whence his name; professor of mathematics in the university of Vienna, and the teacher of Regiomontanus.

- 13193 **PPAFF** (Christian Heinrich, *Univ. Kiel*) REVISION der LEHRE vom GALVANO-VOLTAISMUS, mit besonderer Rücksicht auf Faraday's, de la Rive's, Becquerel's, Karsten's u. a. neueste Arbeiten; *with folding plate*, 8vo. *sewn*, 7s 6d Altona, 1837

- 13194 ——— ANOTHER COPY, *boards (nice copy)*, 8s 6d

The author was one of the earliest and foremost supporters of the contact theory of voltaic electricity, and much of the work is directed against the chemical theory advanced (by Wollaston, Fabbroni, and Ritter) to account for electric action. He also revised Volta's contact series, and was one of the few who appreciated the importance of Ohm's discovery.

- 13195 **PPAFF** (Friedrich, *Univ. Erlangen*) Die NATURKRÄFTE in den ALPEN; oder physikalische Geographie des Alpengebirges; *with diagrams and woodcuts*, post 8vo. *hf. calf extra (nice copy)*, 3s 6d München, 1877

- 13196 **PPAFF** (Johann Wilhelm Andreas, *Univ. Erlangen*) BETRACHTUNGEN über die SPIRALE; *with plate*, 4to. (pp. 14), *sewn*, 2s [? München, 1832]

Not noticed by Poggendorff.

- 13197 **PFAUNDLER** (Leopold v.; *Univ. Graz*) Die ENTWERTHUNG der MATERIE, post 8vo. (pp. 32), *sewn*, 1s 6d Wien, 1888

- 13198 **PFEFFINGER** (Jean Frédéric) FORTIFICATION NOUVELLE, ou Recueil de différentes Manières de Fortifier en Europe, nouvelle Edition; *with frontispiece, vignette on title, and 46 folding copperplates*, 8vo. *boards, uncut, with auto. of [Gen.] Robert Melville [F.R.S., 1723-1809, inventor of a naval gun]*, 5s 6d La Haye, 1740

This work was unknown to Quérard. The *Biographie Générale* only mentions an edition of 1698.

- 13199 **PHELPS** (Robert, *Trinity Coll., Cantab.*) ELEMENTARY TREATISE on OPTICS, intended chiefly to elucidate the PRINCIPLES of the CONSTRUCTION of TELESCOPES, and some other Optical Instruments, *with 69 diagrams*, 8vo. *boards, uncut (scarce)*, 5s Cambridge, 1835

An early Cambridge text-book of geometrical optics.

- 13200 **PHILLIPPS** (Henry, *Philo-Nauticus*) THE SEA-MAN'S KALENDER: or. an Ephemerides of the Sun, Moon, and certain of the most notable Fixed Stars, also a TABLE of the LONGITUDE and LATITUDE of all the most eminent Places of the World, first calculated by JOHN TAP, corrected, with many Additions, *viz.* New Exact TABLES of the NORTH STAR; New TABLES of 65 of the principal FIXED STARS, etc., with a DISCOVERY of a Way to Find the Long Hidden SECRET of LONGITUDE, by HENRY BOND, all which are now newly calculated and corrected, and many Rules and Tables added, *with woodcuts (with the full-page one on p. 11 intact)*, sm. 4to. *large and sound copy in contemporary sheep (back damaged)*; RARE, *with Tixall Library label*, £1. 15s

W. Godbid for E. Hurlock, 1674

'It is a Compendium (if well understood) of the whole Art of Navigation. But its chiefest excellency consists in the Astronomical part thereof; the Tables whereof are so plain and full, and well ordered, that there never were the like in any Book.'—*Address to the Ingenious Sea-man*. At end is a table, giving the latitude and longitude of over 1000 places, by T. STERN, globe-maker.

The work was unknown to Lowndes, while Watt only quotes an edition of 1696. There was no copy of any edition in the Scott Library, nor is there one in that of the Institution of Naval Architects.

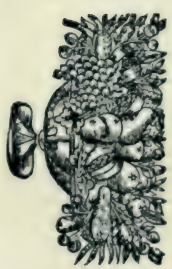
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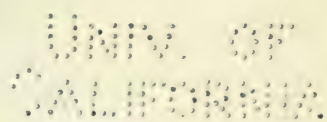
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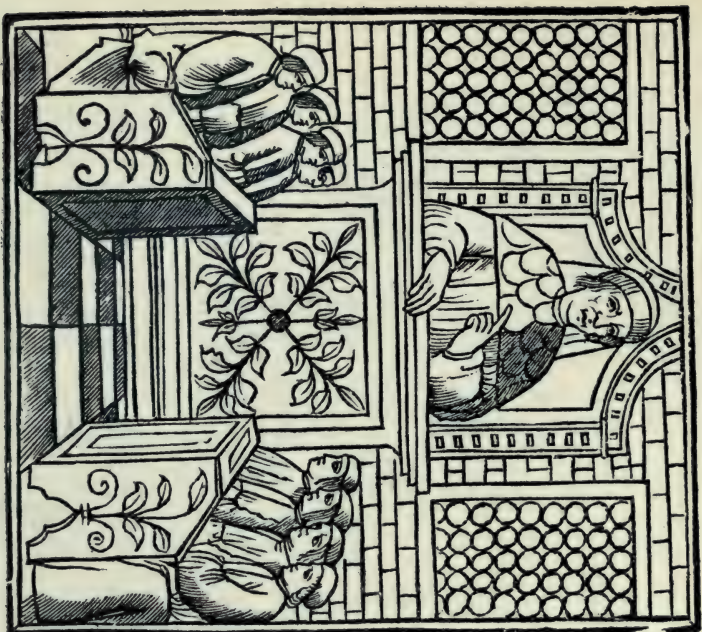
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pesi de le farine e bichborti: & del ordine
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der del olio: & in che modo e peso se uen
dero i guadi: & del ordine di frutti che se vendono a nome di Rer: &
che peso hanno cadaun ferte: come responde el peso grosso con tut
ta la Italia: & tutto el Leuante & Ponente: & etiam come i pesi sottili e
e pesi grossi respondeno con molte terre de Italia: de Dalmatia e de
Leuante: & come respondeno le misure di panni de lana con tutta la
Italia: con tutto el Leuante: & etiam come respondeno le misure di
panni de fedas: panni doro e darzento con tutta Italia: & con tutto el
Leuante & Ponente: & come respondeno le misure Dinglittera cioe
la virga da Londra: e de la Taripha Daliantaria: & etiam quella de
Damafcho & la tripha da Aleppo: e come torna la porta Daliantaria
con molte terre de Leuante e de Ponente e de la Italia: & come el Can
ter fortiori Daliantaria responde con alcune altre terre de Leuante
de Ponente e de Italia: & etiam come responde el Chantier zeoui con
alcune terre del Leuante del Ponente e de Italia: & come responde
el cento de le mane con alcune terre del Leuante e molte de Italia &
del Ponente: & come respondeno tutti cantera de Leuante e del Pos
nente con el peso sottili da Venetia: & come responde el Chantier da
Napoli de reame con molte terre del Leuante del Ponente e con mol
te de Italia: & come responde el Chantier de Constantinopoli con mol
te terre de Leuante & etiam de Italia: & come responde el Chantier de

No. 13000 (page 650).

An early work on weights and measures.

- 13202 **PFORDTEN** (Otto Freiherr v.; *Univ. Strasbourg*) Zur NOMENCLATUR der ANORGANISCHEN VERBINDUNGEN, 8vo. (pp. 9), *sewn*, 1s
Berlin, 1889
- 13203 **PHILIPPS** (Henry) The PURCHASER'S PATTERN, shewing the true Value of LAND or HOUSES, by Lease or otherwise. . . . also TABLES of INTEREST and REBATE at 6 per Cent.; the MEASURING of LAND, BOARD, and TIMBER, and the FALSE METHODS us'd by many therein. Also the ART of GAUGING much enlarg'd with many other Rules about Weights and Measures, TABLES of the EXCISE of BEER and ALE, Tables of Accounts, etc. etc.; 6th Edition, much enlarg'd, 24mo. *old sheep (last l. mounted)*, 8s 6d
1721
A rare work, unknown to Lowndes and Prof. de Morgan.
The above copy belonged to, and bears the armorial bookplate (slightly damaged) of, John Perceval, first Earl of Egmont, F.R.S. (1688-1748), who together with General Oglethorpe established the Colony of GEORGIA.
- 13204 **PHILIPS** (Caspar) WIS- MEET- en DOORZICHT-KUNDIGE HANDLEIDING, volgens welke men ten allen Tyde en Plaatsen den Stand der ZONNE en MAANE; de Verlichting der Voorwerpen door dezelve; de Strekking en Lengten van derzelve Slagschaduw, gemaklyk vinden, en in Perspectiefische Regelen overbrengen en bepaalen kan; with 8 *folding copperplates*, 8vo. *boards, uncut*, 10s 6d
Amsterdam, 1786
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- 13295 — La PRIMA PARTE delle THEORICHE overo SPECULATIONI de i PIANETI; with vignette on title, and numerous diagrams, sm. 4to. hf. roan (some ll. browned and a few holes in last l.), 10s ibidem, Gio. Varisco & Ci., 1568

No second part was ever published of this work.

THE FIRST STAR MAPS:

- 13296 [—] De la SFERA del MONDO, Libri IV in Lingua Toscana, iguali non per via di tradutione, nè à qual si voglia particolare Scrittore obligati: ma parte da i migliori raccogliendo; e parte di nuovo producendo; contengono in se tutto quel ch' intorno à tal materia si possa desiderare. ecc.: De le STELLE FISSE, con le sue Figure e Tavole, dove cō maravigliosa agevolezza potrà ciasche duno conoscere qualunque stella de le XLVIII Immagini del Cielo stellato, ecc., et oltre à questo cison TAVOLE, con nuova invention fabricate, con le lor dichiarazioni, ecc., prima edizione; with woodcuts, diagrams, and 48 star maps, 2 vols. sm. 4to. in 1, old Italian vellum (some ll. wormed, and back of binding damaged, otherwise a sound copy); RARE, £1. 10s ib., al Segno del Pozzo, 1540

This first edition contains some curious and rather free woodcut initials, which were left out or modified in the following ones.

- 13297 — [NEW EDITION OF BOTH WORKS]: di nuovo da lui ripolita, accresciuta, e fino à sei Libri, di Quattro che erano ampliata, e quasi per ogni parte rinnovata, e riformata: with numerous diagrams, woodcuts, and the 48 star maps, 2 vols. sm. 4to. in 1, old vellum (title and first 31 ll. of the 2nd work wanting, also back of binding damaged), 10s 6d ib., Giov. Varisco & Ci., 1566

The first work has been greatly enlarged in the above edition, and increased from four to six books. The edition was unknown to Riccardi. The second work, though imperfect, contains all the star maps.

- 13298 — GLI STESSI; with numerous woodcuts and diagrams, and the 48 star maps, 2 v., Giov. Varisco e Paganino Paganini, s. a.: La PRIMA PARTE delle THEORICHE overo SPECULATIONI de' PIANETI; with numerous diagrams, Giov. Varisco & Ci., 1563—3 vols. sm. 4to. in 1, old hf. white Italian vellum (slightly foxed, but very good copies), £1. 1s ib., s. a.—1563

* Buona edizione'.—Riccardi.

The second work 'De le Stelle Fisse', which has a separate title-page and pagination, is of special interest, containing as it does the first published star maps—a fact not generally known. Four different magnitudes are distinguished, and the stars are named with Latin letters. The Greek lettering, still in use at the present time, was first used by Johannes Bayer in 1603 (q. v. post).

These star maps in all the above editions are xylographs, and according to M. Libri, 'perhaps the last instance of a xylographic work, or portion of a work of any extent, printed during the XVI. Century.'

* La chiarezza, il buon ordine ed il bello stile coi quali sonovi esposte le cognizioni che allora si avevano intorno alla costituzione dell' universo, rendono ragione della straordinaria diffusione di questa opera.'—Riccardi.

- 13299 — De SPHAERA Libri IV, ex Italico in Latinum Sermonem conversi; eiusdem COMPENDIUM de COGNOSCENDIS STELLIS FIXIS, et de MAGNITUDINE TERRE et AQUÆ Liber unus, itidem Latinus factus, JOAN. NICOL. STUPANO Rheto interprete; with woodcuts, numerous diagrams, and 48 star maps, 3 v.: VERÆ SOLARIS atque LUNARIS ANNI QUANTITATIS aliarumque Rerum ad CALENDARIUM ROMANI EMENDATIONEM pertinentium, de Ortu item atque Occasu Stellarum Fixarum compendiosa atque dilucida EXPLICATIO. Opus olim a Petro Pitato Veronensi conscriptum; nunc revisum, etc. [a JOA. NIC. STUPANO]—4 vols. 4to. in 1, old English calf, with gilt ornament in centre (top of back and one corner of binding slightly damaged, otherwise a VERY LARGE AND FINE COPY); RARE, £1. 12s 6d Basileæ, per Petrum Pernam, 1568

The only Latin edition ever published of this work.

* Pierre Pitatus de Verone fit un grand nombre d'observations pour déterminer au juste les périodes lunaires et solaires. Il présente en 1550 au pape Pie IV un plan de réformation.'—Montucla.

- 13300 **PICKETT** (William; Alderman of London) PUBLIC IMPROVEMENT; or, a Plan for making a CONVENIENT and HANDSOME COMMUNICATION between the Cities of LONDON and WESTMINSTER, with folding plan, 4to. (pp. 42), seven (rare), 10s 6d [1789]

An early Strand Improvement Scheme. It included clearing away Butcher Row, and rebuilding and turning round St. Clement Danes' Church.

- 13302 **PICKERING** (Edward Charles; *Director Harvard Coll. Observatory; inventor of the meridian photometer*) DIMENSIONS OF THE FIXED STARS, with especial Reference to Binaries and Variables of the Algol Type, with 2 woodcuts, 8vo. (pp. 37), *sewn*, 1s 6d Cambridge [Mass.], 1880
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Including experiments first introduced by the author.
- 13304 ——— FOURTH ANNUAL REPORT OF THE PHOTOGRAPHIC STUDY OF STELLAR SPECTRA conducted at the HARVARD COLLEGE OBSERVATORY, with photographic plate of spectrum of β Aurigæ, roy. 4to. (pp. 9), *sewn*, 2s Cambridge [Mass.], 1890
- 13305 ——— VARIABLE STARS OF SHORT PERIOD, 8vo. (pp. 28), *sewn*, 1s 6d Boston [Mass.], 1881
- 13306 ——— The WEDGE PHOTOMETER, 8vo. (pp. 3), *unbound*, 1s [Cambridge, Mass.], 1882
- 13307 ———, Arthur SEARLE, and Oliver Clinton WENDELL: OBSERVATIONS with the MERIDIAN PHOTOMETER, 1879-82, roy. 4to. (pp. 186), *sewn* (o. p.), 7s 6d *ibidem*, 1885
Containing interesting chapters on 'Ancient Catalogues', 'Catalogues of Sir William and Sir John Herschel', and 'Modern Catalogues' (pp. 48), 'Discordant Observations', 'Suspected Variables', and 'Errors of Catalogues'. It forms a supplement to the author's Photometric Catalogue, published in 1884.
- 13308 ——— PHOTOMETRIC MEASUREMENTS OF THE VARIABLE STARS β PERSEI and DM. 81° 25, made at the Harvard College Observatory, 8vo. (pp. 37), *sewn*, 1s 6d *ibidem*, 1881
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- 13315 ——— INVESTIGATIONS IN ASTRONOMICAL PHOTOGRAPHY, with 7 plates, 4to. *sewn*, 3s 6d Cambridge, Mass., 1895
- 13316 **PICTET** (Lieut.-Col. Adolphe) ESSAI sur les PROPRIÉTÉS et la TACTIQUE des FUSÉES de GUERRE, 8vo. hf. calf, 3s Turin, 1848
- 13317 **PICTET** (Marc Auguste; F.R.S.) ESSAY ON FIRE, translated under the Inspection of the Author, by W. B., M.D., with folding frontispiece and table, 12mo. hf. calf (front. browned); RARE, 12s 6d 1791
'In consequence of this delay [in printing] I have been anticipated in the suggestion of some of the general ideas contained in the first chapter by Mr. Lavoisier in his *Elementary Treatise of Chemistry*. . . Certain paragraphs of my work resemble almost word for word those of that celebrated chemist.'—*Preface*.
The author gave in the above work an explanation of the formation of dew, by which he was able to explain a dew-maximum on clear nights. His theory was completed in 1814 by Dr. W. C. Wells, F.R.S. (v. Nos. 5322-5 ante).
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Containing the discovery of the law of storms (together with Sir William Reid, q. v. post). The author also originated in this work the word 'cyclone'.
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A curious medley of mathematics, autobiography, and poetry.
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- 13327 **PILLA** (Niccola) Il GALVANISMO, nel suo Rapporto colla RIPRODUZIONE ANIMALE, ovvero TEORIA della GENERAZIONE, 8vo. *sewn* (rare), 7s 6d Napoli, 1817
This work is not mentioned by Poggenorff and other bibliographers, nor contained in the otherwise complete list of books on electricity in the Catalogue of the Ronalds Library.

- 13329 **PIESSE (G. W. Septimus, analytical chemist)** *THE ART OF PERFUMERY*, and the Methods of Obtaining the Odours of Plants, with Appendix on the Colours of Flowers, Artificial Fruit Essences, etc., first edition, with numerous pretty full-page and other woodcuts, post 8vo. cl. (scarce), 6s 1835
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The Libri copy fetched 47 francs in 1847, but the work was unknown to Poggendorf.
- 13332 **PIG-IRON INDUSTRY**, COLLECTIVE EXHIBIT illustrating the, Franco-British Exhibition, 1908, with plate, 8vo. sewn, 1s Iron and Steel Institute, 1908
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This rare work was unknown to Quérard, Brunet, or Graesse, but is mentioned by Poggendorf, who states that the author made a planetarium, as described above, for Louis XIV., for which he received ‘a royal reward’, and sold another ‘for a high price’ to Peter the Great in 1716.
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- 13346 **PINO (Domenico, o.p.)** *L'INCREDIBILITÀ del MOTO della TERRA brevemente esposta*, 8vo. (RARE), 10s 6d Milano, 1806
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- 13348 **PINGRÉ** (Alexandre Guy, *Chanoine Régulier de Ste.-Geneviève; Chancelier de l'Université de Paris; de l'Académie des Sciences*) COMÉTOGRAPHIE, ou Traité historique et théorique des Comètes; with 7 copperplates, 2 vols. 4to. *old French mottled calf extra (top of back slightly damaged); RARE, £1. 10s* Imprimerie Royale, 1783-4
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- 13350 **PINTO D'ALMEIDA** (A. J.) PRINCIPIOS de GEOLOGIA; with 2 diagrams, 4to. *hf. bound, with Sandhurst College bookplate, 4s* Coimbra, 1838
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- 13352 ———, et A. L. TARDY: EXPÉRIENCES sur les ROUES HYDRAULIQUES à AXE VERTICAL, et sur l'Écoulement de l'Eau dans les Coursiers et dans les Bases de Forme Pyramidale; with 4 folding plates, 4to. (pp. 40), *sewn, 5s 6d* 1840
 'Les expériences rapportées dans le présent ouvrage offrent un des premiers exemples de l'emploi du frein [Prony, v. No. 13731, post] à la mesure de l'effet utile transmis par les machines.'—*Avant-propos*.
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 Francofurti, N. Hofmann, 1612
- The last edition of the first complete text-book of trigonometry. 'It contains the expressions for sin (A ± B) and cos (A ± B) in terms of the trigonometrical ratios of A and B.'—*W. R. Ball*.
 'Both very scarce. Brunet mentions only the first edition (containing solely ten Books of Problemata), as printed in 1600 at Augsburg. The third improved edition was totally unknown to him, as was also the Canon, which is not mentioned by Lalande, and is even rarer than the celebrated 'Thesaurus Mathematicus', published by the same author in 1613.'—*Libri Catalogue*.
- 13371 **PLAATS** (J. D. van der; Utrecht) DÉTERMINATION de quelques POIDS ATOMIQUES, 4to. (pp. 4), *sewn, 1s 6d* [1857]
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1743
'Ouvrage excellent.'—*Biogr. Générale*. At end are 20 'Tables for the Working of Ships', which were specially recommended for their excellence by the French Academy of Science.
There was no copy of the English translation in the Scott Library, nor is there a copy of either original or translation in that of the Institution of Naval Architects.
- 13376 [**PLACE** (*Le Capitaine de*)] L'ARTILLERIE ACTUELLE en France et à l'ÉTRANGER: Canons, Fusils, Poudres, et Projectiles, par le COLONEL GUN; with 96 woodcuts, cr. 8vo. hf. maroon morocco (stamp on title), 3s
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- 13379 ——— MÉMOIRE sur les FORMULES propres à déterminer la PARALLAXE ANNUELLE des ÉTOILES Simples ou optiquement Doubles, 4to. (pp. 18), sewn, 3s 6d Impr. Royale, Turin, 1858
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¹ Dr. Tyndall [*sic*] from the Author.—*Inscr. on cover.* It was the author's introductory lecture on his appointment to the chair of chemistry in Edinburgh University.
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 This work was privately printed, and copies were presented by order of the Governor in Council at Madras.
 — v. Nos. 11268-71, ante.
- 13452 **POHL** (Georg Friedrich; *Univ. Breslau*) Der ELEKTROMAGNETISMUS, theoretisch-praktisch dargestellt, ERSTE ABTHEILUNG (soweit erschienen); *with 3 folding plates*, 8vo. *sewn*, 5s *Berlin*, 1830
 The author proposed a new theory of the galvanic current, based on that of galvanic and chemical action being identical. He was the inventor of the current reverser (Pohl's gyrotrope).
- 13453 **POHL** (Joseph Johann) Ueber die SIEDEPUNKTE mehrerer ALKOHOLHÄLTIGER FLÜSSIGKEITEN und die darauf gegründeten Verfahren den Alkoholgehalt derselben zu chemisch-technischen Zwecken zu bestimmen; *with plate, folio, sewn*, 5s *Wien*, 1850
- 13454 **POINCARÉ** (Lucien, *Inspecteur-Général de l'Instruction publique*) ELECTRICITY: Present and Future, translated by JASPER KEMMIS, 8vo. *cl.*, 4s 6d (7s 6d nett) [1908]

- 13456 **POINCARÉ** (Henri Jules, de l'Institut; F.R.S., brother of the President of the French Republic) CALCUL des PROBABILITÉS: Leçons professées pendant 1893-4, rédigées par A. QUIQUET; with 19 diagrams, roy. 8vo. sewn, 4s (p. F. 9 nett) 1896
- 13457 ——— ELECTRICITÉ et OPTIQUE, I. Les Théories de Maxwell, et la Théorie Électromagnétique de la Lumière. II. Les Théories de Helmholtz et les Expériences de Hertz; with 54 diagrams, 2 vols. roy. 8vo. in 1, hf. buckram, 8s 6d 1890-1
- 13458 ——— DEUXIÈME [DERNIÈRE] ÉDITION, revue et complétée par JULES BLONDIN et EUGÈNE NECULCEA; with 62 diagrams, roy. 8vo. (pp. 651), hf. calf gilt, 16s 1901
- 13459 ——— Sur un THÉOREME de M. FUCHS, roy. 4to. (pp. 32), sewn, 2s 6d Stockholm, 1885
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- 'It was pointed out in the *Gentleman's Magazine*, 1748 (pp. 255-6), that this volume supplied the groundwork of 'The Shepherd of Banbury's Rules to judge the Weather, by John Claridge, shepherd.'—D. N. B. (v. Nos. 6908-5 ante).
- There is no copy of the second edition in the Royal Meteorological Society's Library Catalogue, 1891.
- 13470 **POISEUILLE** (Jean Léon Marie, de l'Académie de Médecine), RAPPORT sur un MÉMOIRE de, ayant pour Titre: RECHERCHES EXPÉRIMENTALES sur le MOUVEMENT des LIQUIDES dans les Tubes de très-petits Diamètres, Commissaires, MM. ARAGO, BABINET, PIOBERT, REGNAULT Rapporteur; with plate, 4to. (pp. 21), sewn, 3s [1842]
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The author was the first to introduce macadamising into France on a large scale. He seems to have introduced the heavy roller, a doubtful improvement on McAdam's ramming process; and also a very fierce-looking mechanical scarifier: both illustrated above.

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The first memoir contains the invention of the water-wheel known by the author's name, an undershot wheel with curved floats, which is still the best when the fall does not exceed 6 feet. 'The principle of this wheel lies in the water being received by the curved floats without any shock and finally discharged with small velocity.' The Poncelet wheel utilises 60 % of the water power, against 25 % with the ordinary undershot wheel.

- 13487 — *RECHERCHES sur le CALCUL des SÉRIES, ou Application de la MÉTHODE des MOYENNES à la TRANSFORMATION au Calcul Numérique et à la Détermination des Limites du Reste des Sériés*; with *plate*, 4to. (pp. 88), *sewn*, 3s 6d 1833

- 13488 — *TRAITÉ de MÉCANIQUE INDUSTRIELLE*, exposant les Principes de Statique et de Dynamique, les Organes Mécaniques et les Moteurs; with 25 *folding plates*, 8vo. *calf*, 3s 6d Bruxelles, 1839

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The *Traité* is a Belgian reprint of the above *Introduction*, with the addition of a number of plates.

- 13490 — *TRAITÉ des PROPRIÉTÉS PROJECTIVES des FIGURES*; with 12 *plates*, 4to. *sewn, uncut*. 8s 6d 1822

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'He investigated in it the properties of figures which remain unaltered by projection, which is not effected here by parallel rays of prescribed direction, as with Monge, but by centre projection. . . . To him we owe the Law of Duality as a consequence of reciprocal polars.'—*Prof. Cajori*.

The work was written in 1813 while the author was a prisoner of war in Saratoff, with no other help than his memory.

- 13491 **PONTÉCOULANT (Philippe Gustave Doucet Comte de)** *THÉORIE ANALYTIQUE du SYSTÈME du MONDE, avec les Suppléments aux Livres II et V*, 4 vols. 8vo. *new hf. brown calf gilt (SCARCE)*, £1. 15s 1829-46

Vol. IV, containing the Lunar Theory, is now very scarce. Vols. III and IV have never been reprinted.

- 13492 — *TOMES I à III, avec les SUPPLÉMENTS aux Livres II et V*, 3 vols. 8vo. *hf. calf gilt*, 12s 1829-34

- 13493 — *LES MÊMES*, avec les SUPPLÉMENTS, 3 vols. 8vo. in 2, *hf. calf (worn and soiled copy)*, 8s

- 13494 **PONTHÆUS [Italice PONTE] (Josephus Dionysius)** *COMETICÆ OBSERVATIONES habitæ ab Academia Physico-mathematica Romana, Anno 1680 et 1681*; with *fine star-maps by N. Billy*, sm. 4to. *extra boards (fine copy)*; RARE, 12s 6d Romæ, 1681

One of many accounts of the comet of 1680, which from its nearness to the earth greatly terrified the people. The same comet was also observed by Sir Isaac Newton, whom it enabled to demonstrate that comets as well as planets are subject to the law of gravitation. Cometary astronomy, till then neglected, now entered on a new and more prolific era.

The above account is rare and was unknown to Houzeau and Lancaster; nor is the author mentioned by Poggendorf and other bibliographers.

- 13496 **PONTIÈRE** (Honoré, *Univ. Louvain*) THERMO-CHEMICAL STUDY of the REFINING of IRON, 8vo. (pp. 16). *sewn*, 1s 6d 1897
 Prof. Pontière's lecture-room doubtless added some sticks to the bonfire at the Kulturfest of the Emperor William the Slaughterer.
- 13497 **PONTON** (Mungo, F.R.S.E.) On CERTAIN LAWS of CHROMATIC DISPERSION, 8vo. (pp. 41). *sewn*, 2s [1859]
- 13498 ——— EARTHQUAKES: their History, Phenomena, and probable Causes, revised Edition, with Account of recent Earthquakes, 23 plates and woodcuts, cr. 8vo. cl. (o. p.), 3s 1888
 This work is not noticed in *D. N. B.* The author made the discovery that the action of sunlight renders bichromate of potassium insoluble.
- 13499 ——— On the LAW of the WAVE LENGTHS corresponding to certain Points in the SOLAR SPECTRUM, 8vo. (pp. 8), *unbound*, 1s 6d [1860]
- 13500 **POOLE** (Cecil Percy, M.A.I.E.E.) DIAGRAMS of ELECTRICAL CONNECTIONS, with 130 diagrams (including folding plates), roy. 8vo. cl., 5s (p. 8s 6d nett) New York, 1907
- 13501 **POOLE** (John; dramatist) CROTCHETS in the AIR; or an (Un)scientific Account of a Balloon Trip, in a Familiar Letter to a Friend, 2nd Edition, 8vo. *original figured cl., with balloon in gold in centre (scarce)*, 10s 6d 1838
 Hatton Turner, who quotes very fully from the above work in his *Astra Castra*, writes 'I much regret that I have not been able to find the name of the author of the amusing paper entitled 'Crotchets in the Air'. He might have done so, had he procured a copy with the title-page.
 It includes an account of the disastrous ascent of Mme. Blanchard, which the author witnessed while staying in Paris.
- 13502 **POOR** (Charles Lane, *Columbia Univ.*; F.R.A.S.) The FIGURE of the SUN, with the Observations of SCHUR and AMBRONN, with 3 diagrams, 2 parts roy. 8vo. (pp. 25), *sewn, with author's inscr.*, 2s 6d Chicago, 1905
- 13503 **POPE** (Thomas, *Architect and Landscape Gardener*) TREATISE on BRIDGE ARCHITECTURE, in which the SUPERIOR ADVANTAGES of the FLYING PENDENT LEVER BRIDGE are fully proved; with Historical Account and Description of Bridges in various Parts of the World, *frontispiece of an 1800 feet span timber bridge over the East River, New York, and vignette (both in duplicate)*, and 14 plates, 8vo. *original hf. binding, uncut (back damaged)*; VERY SCARCE, £1. 10s New York, 1811
 This was a wonderful idea indeed, for a quasi-cantilever bridge of timber, buildable without centring, and of apparently unlimited span. The author justly claims that its 'principles, shape, construction, and extent differ wholly from all others before invented', and breaks out into much verse in the metre of his namesake, e.g.,
 'Let the Broad Arch the spacious Hudson stride,
 And span Columbia's rivers far more wide.
 Convince the world America begins
 To foster Arts, the ancient work of Kings'.
 The work contains an interesting list of subscribers, containing about 500 American names.
- 13504 **POPE** (William Jackson; F.R.S.; *Prof. Chemistry, Cantab.*) The CRYSTALLINE FORMS of the SODIUM SALTS of SUBSTITUTED ANILIC ACIDS, with 5 diagrams, 8vo. (pp. 8), *sewn, with author's inscr.*, 1s 6d 1892
- 13505 ——— Die KRYSTALLFORMEN der NATRIUMSALZE der SUBSTITUIRTEN ANILSÄUREN; die KRYSTALLFORMEN der STEREOISOMEREN *αα'*-DIMETHYLPIMELINSÄUREN; with 8 diagrams, 8vo. (pp. 8), *sewn*, 1s 6d Leipzig, 1895
- 13506 ——— ORTHOBENZOSULPHINIDE, with 3 diagrams, 8vo. (pp. 6), *sewn, with author's inscr.*, 1s 6d 1895
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'Il s'y prononce contre certaines aberrations de l'astrologie judiciaire, mais en accordant aux astres une influence très-active.'—Biogr. Gén.

13517 — **MAGLE NATURALIS**, sive de **MIRACULIS RERUM NATURALIUM** Libri IIII, editio princeps; with curious woodcut initials, folio, old Italian vellum (last l. wanting, and some ll. water-stained, otherwise a CLEAN AND SOUND COPY); excessively rare, £3. 10s
Neapoli, apud Matthiam Cancer, 1558

The first edition of this work in its original and more popular form in four books is of excessive rarity, Riccardi, who apparently could trace no copy of it ('rarissima edizione'), being unable to give a collation, while other bibliographers state that it only contained 3 books.

The *Magia Naturalis* in latter books is quite a different work from that in twenty, and contains far more occult and superstitious matter than the latter, which made it however only the more acceptable to the contemporary reader. The author mentions therein the *camera obscura* without the lens, the discovery of which is generally ascribed to Leonardo da Vinci, but was really first mentioned by Levi ben Gerson in a work translated in A.D. 1342 under the title 'De Sinibus et Cordis.' The camera with the lens was first described in the work rewritten in 20 books. Porta also mentions that the declination of the magnetic needle varies with the longitude, which he assumed erroneously could be ascertained by the magnetic variation. The work was written at the age of 15, and is dedicated to Philip II. of Spain. The work as above contains the 'Experimentorum Omnium Magie Naturalis Index' (pp. 10), which is absent in the second edition of Antwerp, 1564, and other reprints.

'De tous les écrits de Porta ce fut celui qui eut le plus de succès; dès sa première apparition, on le traduisit en plusieurs langues, et l'empressement du public fut tel, ce livre fut lu avec tant d'avidité, il passa par tant de mains, que cet usage continué a détruit les premières éditions, et que l'en connaît plus que des réimpressions. . . Ces apparitions prodigieuses, ces miracles, étaient le roman de l'époque: et c'est ci vrai que lorsque, après des longs travaux, l'auteur le fit imprimer de nouveau avec de si notables additions, en le purgeant d'un grand nombre de prodiges imaginaires, ce livre perdit considérablement de sa vogue, et fut bientôt relégué parmi d'autres ouvrages du même genre.'—G. Libri.

13518 — **MAGLE NATURALIS LIBRI XX**, ab ipso Autore expurgati, et superaceti, in quibus Scientiarum Naturalium Divitiæ et Delitiæ demonstrantur. I. De mirabilium Rerum Causis. II. De variis Animalibus gignendis. III. De novis Plantis producendis. IIII. De augenda Supellectili. V. De Metallorum Transmutatione. VI. De Gemmarum Adulteriis. VII. De Miraculis Magnetis. VIII. De portentosis Medelis. IX. De Mulierum Cosmetice. X. De extrahendis Rerum Essentiis. XI. De Myropœia. XII. De incendiariis Ignibus. XIII. De raris Ferri Temperaturis. XIII. De miro Coniuviorum Apparatu. XV. De capiendis Manu Feris. XVI. De inuisibilibus Literarum Notis. XVII. De catoptricis Imaginibus. XVIII. De staticis Experimentis. XIX. De Pneumaticis. XX. Chaos; editio princeps, with title within woodcut border, portrait et. 50, and numerous other woodcuts and diagrams, folio, old white vellum (some ll. browned as usual, otherwise a sound copy), very rare, £2. 10s

ibidem, apud Horatium Salvianum, D.D.LXXXVIII [recte 1589]

13519 — ANOTHER COPY; old white vellum gilt (some ll. slightly water-stained, and others browned, otherwise a sound and UNUSUALLY TALL COPY), £3. 3s

First edition of the complete work in 20 books, and now of great rarity. Numerous reprints were published, and it was translated into many foreign languages.

13520 — EDITIO NOVA, nunc vero ab Infinitis, quibus Editio illa [princeps] scatebat Mendis, optime repurgata: in quibus Scientiarum Naturalium Divitiæ et Deliciæ demonstrantur, accessit Index copiosissimus; with woodcuts and diagrams, sm. 8vo. contemporary white vellum (fine copy), 12s 6d
Rothomagi, Jo. Berthelin, 1650

13521 — EDITIO ALTERA, cum Indice copiosissimo; with engraved title, and numerous woodcuts and diagrams, 12mo. hf. calf (binding damaged), 10s
Lugd. Bat., P. Leffen, 1651

13522 — ANOTHER COPY, white vellum (engraved title wanting, but a very sound copy), 8s 6d

A very neatly printed edition. The engraved title is dated 1650. Porta's *Magia Naturalis* in Twenty Books is quite a different work from that in Four Books, first published in 1558, and is one of the most important works on natural science published during the XVIIth Century. Many of the superstitious and even puerile passages of the latter were left out in this work, and sixteen new books were added. It is a great storehouse of fact and fiction, brought together from every available source and from private conversations, during the author's extensive travels in Italy, France and Spain. Some of the books were afterwards published in an enlarged and separate form.

Of great interest is book VI, which shows that the production of artificial gems must have been far advanced in Porta's time. The seventh contains some important observations on the magnet. The most important however is the seveneenth, which contains Porta's invention of the camera obscura with the lens, and the *laterna magica*, afterwards improved by Father Kircher. A passage of the tenth chapter has also been quoted to ascribe to him (mistakenly) the invention of the telescope.

13523 — NATURAL MAGICK: in Twenty Books, wherein are set forth all the Riches and Delights of the Natural Sciences, with engraved title (including portrait) by R. Gaywood, and numerous woodcuts and diagrams, folio, old calf (binding rubbed and mended); rare, £4. 4s
Thomas Young and Samuel Speed, 1658

13524 — ANOTHER COPY, old hf. calf (wanting printed and engraved titles, Table (3 ll.), and pp. 353-4 and 359-60); a cheap copy, £1. 1s

This English edition, the only one ever published, has now become very rare, presumably from the constant use this favourite book had to undergo.

The *Natural Magick* was the last great storehouse of science with its myriads of 'facts' without any experimental proof or confirmation. It is interesting as having—perhaps the most typical of its kind—been published on the eve of the beginnings of experimental physics, started by William Gilbert and Sir Francis Bacon.

Gobert THE Bancrofte
Pathway to Knowledge.

Conteyning certaine briefe Tables of
English waights, and Measures, with the propor-
tions, kinds, and numbers belonging properly
vnto the same.

How to cast accompt with Counters, and with
Pen, both in whole and broken numbers.

With the Rules of Cossicke, Surd, Binomickall, &
Residuall Numbers, and the Rule of Equa-
tion, or of Algebere, with diuers exam-
ples for the working of the same.

Wherunto is annexed a most excellent Inven-
tion of Iulius Caesar Patauinus, for the buying
and selling of all kinde of Marchandise.

Nastly the order of keeping of a Marchants
booke, after the Italian manner, by Debitor
and Creditor, with all Instruction to
lead you to the same.

All more briefly done, then any hitherto hath
been set forth.

Together with a Table in the beginning of the
booke, where you may finde the principall
matters conteyned in the same.

Written in Dutch and translated into
English, by W. P.

Printed in London for William Baulch, p. 1616.
are to be sold at his shop at the vnder
end of Chancery Lane.

MAGIAE NATURALIS,
SIVE

DE MIRACVLIS REVM NATRALIVM LIBRI IIII.



IO. BAPTISTA
PORTA NEAPOLITANO
A V C T O R E.



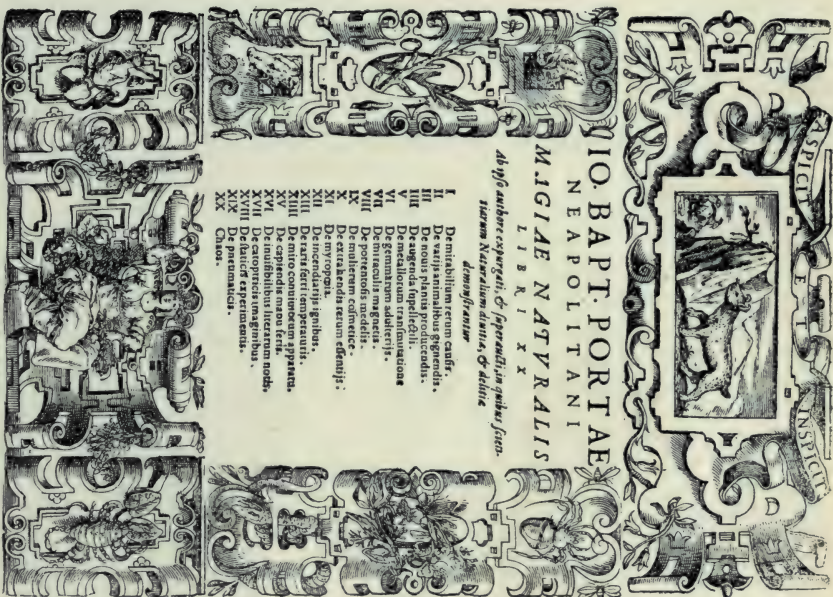
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M. D. LVIII.

CVM GRATIA ET PRIVILEGIO

PER DECENNIVM.



Nos. 13517-19 (page 676).

First editions of the two varieties of this celebrated cyclopedia.

- 13526 **PORTA** (Giovanni Battista della; *Napolitano*) De DISTILLATIONE Lib. IX, quibus certa Methodo, multipliciq; Artificio, penitioribus Naturæ Arcanis detectis, cuiuslibet mixti in propria Elementa Resolutio, perfectè docetur, editio princeps; with fine engraved portrait æt. 64 by J. Laurus, and numerous large woodcuts of chemical apparatus, etc., sm. 4to. contemporary white vellum (portrait and some ll. stained and browned), 16s

Roma, ex Typogr. Rev. Camera Apostolica, 1608

- 13527 ——— ANOTHER COPY, contemporary white vellum (sound and clean copy), £1. 1s
13528 ——— A LARGE PAPER COPY, printed on blue paper, 4to. contemporary white vellum gilt, with arms in gold on sides (FINE COPY), £1. 15s

Copies on blue paper are VERY RARE. Græsse only knew one such copy, that in the Biblioteca Riccardiana, Florence. Coloured paper of such an early date is also a curiosity in the art of paper-making.

- 13529 ——— EDITIO NOVA, nunc primum in Germania Typis vulgata ac Indice Capitum et Materiarum exornata; with fine engraved portrait by J. v. Heiden, and the numerous woodcuts re-engraved, sm. 4to. boards, covered with old MS. on vellum (sound and clean copy); RARE, 15s

Argentorati, L. Zetzner, 1609

The first edition printed in Germany, and unknown to Græsse. It contains an index which is not included in the first edition; the woodcuts are also more neatly executed than in the former edition.

The above copy belonged to Samuel Eglinger, M.D., professor of mathematics, Basel University (1688-73), and bears the following inscription on flyleaf: 'Sam. Eglinger D. A. MDCLXIII. Pœlix qui potuit rectè cognoscere causas! Symb.'

'Ouvrage curieux en ce qu'il donne un état exact de la chimie au seizième siècle.'—*Biogr. Gén.*

- 13530 ——— La FISONOMIA dell' HUOMO, et la CELESTE: Libri Sei, tradotti di Latino in Volgare, et hora in questa Settima Impressione ricorretta, con la Fisonomia Naturale di Monsignor Giovanni Ingegneri, di Polemone, di Adamantio, et il Discorso di Livio Agrippa sopra la Natura e Complessione Humana, con il Trattato di Nei di Lodovico Settali, aggiuntovi da nuovo la Metoposcopia di CIRO SPONTONE; with full-page woodcut portrait (different from the foregoing ones), and very numerous large woodcuts, 4to. boards, uncut, 16s

Venetia, N. Pezzana, 1668

'Tout en profitant des observations d'Aristote, de Polemon et d'Adamantius, Porta a déployé tant de sagacité dans ses propres recherches qu'il peut passer pour le véritable fondateur de la physiognomie.'—*Biogr. Gén.* To this edition is added the *Celeste Fisonomia* (v. No. 13515 supra).

- 13531 ——— De OCCULTIS LITERARUM NOTIS, seu Artis Animi sensa occultè aliis significandi, aut ab aliis significata expiscandi enodandique Libri IIII; explicantur autem inter cætera etc. veterum quoque Scriptorum Loca, hæc de Arte loquentia; indidemque petita; with woodcuts and figures, 12mo. sound and clean copy in old pressed calf (RARE), £1. 12s 6d Montisbeligardi, J. Foillet, 1593

- 13532 ——— EDITIO NOVA, priori castigatior, cui [Liber QUINTUS et] AUCTARIUM accesserunt, Additamenta quædam continens, ad præcedentes Libros, tum novis inventis, tum pluribus Exemplis, auctiores et illustriores reddendis; with numerous woodcuts and figures, thick 12mo. fine copy in contemporary white vellum, £1. 10s

Argentorati, L. Zetzner, 1606

The first edition of this work was published in four books in 1568 as *De Furtivis Literarum Notis*. The fifth book was first published in the edition of Naples, 1592, and the above first contains the 'Auctarium' and is the last mentioned by Riccardi.

'Dans ce traité de chiffres ou d'écriture secrète, il indique 180 procédés différents et met en outre sur la voie de les multiplier à l'infini.'—*Biogr. Gén.*

- 13533 ——— PNEUMATICORUM Libri III, quibus accesserunt CURVILINEORUM ELEMENTORUM Libri II, editio princeps; with vignette on title and numerous woodcuts and diagrams, 2 vols. sm. 4to. in 1, old white vellum (a few ll. very slightly wormed, otherwise a large and fine copy); RARE, £1. 5s

Neapoli, Jo. Jac. Carlinus, 1601

This work is of interest as containing the earliest attempt towards measuring the volume of steam given off by a given quantity of water.

'An apparatus similar to that of Hero of Alexandria is described by della Porta in his Pneumatics, published in 1601, with this addition, that the condensation of steam within a close vessel is described as a means of producing a vacuum, and thereby causing water to ascend and fill the vessel.'—*Prof. Rankine, F.R.S.*

The above volume first contained the author's work on curves, which was republished in an enlarged form in 1610.

- 13534 ——— I TRE LIBRI de' SPIRITALI, cioè d'INALZAR ACQUE per FORZA dell' ARIA [tradotti, colle Aggiunte dell' Autore, da JUAN ESCRIVANO]; with vignette on title, and numerous woodcuts, cr. 4to. FINE COPY in brown morocco, with bookplate of Henry B. H. Beaufoy, F.R.S. (RARE), £1. 5s

ibidem, a. c., 1606

The Italian translation of the *Pneumatica*, first containing the illustration celebrated in the history of the steam engine.

'On trouve à la page 75 de cet ouvrage une figure représentant la machine inventée par Porta pour élever l'eau à l'aide de la force élastique de la vapeur, figure dont Fr. Arago a donné un fac-simile dans son *Histoire des machines à vapeur*.'—*Brunet*. There is also an illustration of a *thermoscope* on page 76.

'Dans la traduction italienne des *Pneumaticæ*, Porta parle des moyens à employer pour connaître en combien d'air se transforme une quantité donnée d'eau. Cet air n'est autre chose que la vapeur, et l'on ne peut se refuser à voir ici une des premières applications faites par les modernes de ce puissant moteur. Au même endroit Porta traite de la raréfaction de l'air par la chaleur, et l'applique à un instrument, qui est une espèce de thermomètre.'—*M. Libri*.

- 13535 **PORTA LEONE** (Abrahamo [ben David Arie], *Mantuanus, Medicus Hebraeus*) De AURO DIALOGI TRES, in quibus non solum de AURI in RE MEDICA FACULTATE, verum etiam de SPECIFICA eius, et cæterarum Rerum Forma, ac Duplici Potestate, qua mixtis in omnibus illa operatur, copiosè disputatur. Cum Licentia SANCTÆ INQUISITIONIS, et Illustrissimi Senatūs Venetī; with plate of emblem, sm. 4to. old white vellum (some ll. browned, otherwise a FINE COPY); RARE, £1. 15s

Venetis, J. B. à Porta, 1584

An iatro-chemical work of importance, in which the author denies that the internal use of gold lengthens life, and containing matters of interest to the historian of chemistry and physics. It was unknown to Poggendorff, Brunet, Græsse, and other bibliographers.

- 13536 **PORTLOCK** (Major-Gen. Joseph Ellison, R.E., F.R.S.) REPORT on the GEOLOGY of the COUNTY of LONDONDERRY, and of Parts of TYRONE and FERMANAGH, with 38 lithographs of Fossils, 9 folding plates (some coloured), woodcuts, and large coloured map, thick 8vo. cl., 8s Dublin, 1843

'He was a geologist after my own heart.'—*Sir Roderick Murchison*.

- 13537 **POSELGER** (Friedrich Theodor; *Berlin*) Das TAYLORSCHE THEOREM, als GRUNDLAGE der FUNCTIONEN-RECHNUNG, 4to. (pp. 26), sewn, 2s

[Berlin, 1835]

- 13539 **PORTER** (George Richardson, F.R.S., author of 'The Progress of the Nation') *The NATURE and PROPERTIES of the SUGAR CANE, with Practical Directions for the IMPROVEMENT of its CULTURE, and the MANUFACTURE of its Products, 6 plates of Machinery, etc., besides woodcuts, 8vo. cl., uncut (scarce), 10s* 1830

Written before the abolition of slavery in the British West Indies.

This edition contains an Appendix (pp. 79) left out in the second, containing Extracts from Reports made to the Agricultural Society of Antigua, Tables of Imports and Exports of Sugar to and from Great Britain, and other information giving interesting statistical details.

- 13540 — **SECOND EDITION**, with additional Chapter on the Manufacture of Sugar from BEET ROOT, with 6 plates and 3 woodcuts, 8vo. cl., 10s 1843

Published after Abolition, with a view to make up for dearer labour by more efficient processes.

- 13541 **PORTER** (Samuel, surveyor and engineer to the Stratford-on-Avon Canal) *The ARTIFICER'S, FARMER'S, and INLAND-NAVIGATOR'S ASSISTANT: shewing by DECIMAL TABLES (at Sight) the most useful Kinds of Admeasurements at any Length, Breadth, or Depth; also an easy and practical Method of Leveling, Surveying, etc., with front. of 'Porter's Balance Level', 4to. hf. bound (back damaged), 7s 6d* 1799

Scarce, and unknown to Watt, Lowndes, Allibone, and others. The 'inland-navigator' was the original form of the present word navy.

- 13542 **PORTER** (Henry, M.D., F.G.S.) *The GEOLOGY of PETERBOROUGH and its Vicinity, with 10 lithographs, post 8vo. cl., with inscr. to Prof. James Tennant, 4s* Peterborough, 1861

- 13543 **PORTS MARITIMES de la FRANCE**: NOTICE sur le PORT de BOULOGNE, par M. VIVENOT, '74: DIEPPE, par M. LAVOINIER, '74: CHERBOURG, par M. DE ST.-AMANT, '77: LE HAVRE, par M. QUINETTE DE ROCHEMONT, '75: SAINT-MALO et SAINT-SERVAN, par M. FLOUCAUD de FOURCROY, '77: ALGER, par M. TRÈVES, '91: DELLYS, par le même, '92; with a large folding plan to each port (except Cherbourg, Saint-Malo, and Saint-Servan), and numerous smaller plans, and diagrams—7 vols. roy. 4to. in 1, hf. morocco neat, £1. 1s

Imprimerie Nationale, 1874-92

- 13544 **POŠEPNÝ** (Franz) *The GENESIS of ORE-DEPOSITS (read before the International Engineering Congress, Chicago, 1893), with portrait (inserted), and 12 plates (pp. 173): DISCUSSIONS on the above Paper, with diagrams, 5 papers (pp. 89): BIOGRAPHICAL NOTICE by R. W. RAYMOND (pp. 13)—in 1 vol. 8vo. cl. (scarce), 6s 6d* [New York, 1893-4]

'A complete treatise on the subject, comparable in importance with those of Cotta, Groddeck and Grimm.'—*Engineering and Mining Journal*.

- 13545 **POST** (J.), et Bernhard **NEUMANN**: *TRAITÉ COMPLET d'ANALYSE CHIMIQUE appliquée aux ESSAIS INDUSTRIELS*, 2^e Édition française, entièrement refondue, et augmentée par M. PELLET et G. CHENU, Tome II, Fascicule II: SUCRE, Amidon, Dextrose, et Glucose; with 120 illustrations, roy. 8vo. sewn, 3s 6d (p. F. 8 nett) 1910

- 13546 **POST** (J. W., *Niederländische Staatsbahn*) *QUERSCHWELLEN mit DIRECT EINGEWALZTEN, GENEIGTEN und VERSTÄRKTEN AUFLAGEFLÄCHEN; with 3 folding plates, 4to. (pp. 4), sewn, with inscr. to J. Bosscha, inventor of duplex telegraphy, 2s 6d* Wiesbaden [1885]

- 13547 **POSTE** (Edward, *Oriel Coll.*) *The LOGIC of SCIENCE: a Translation of the Posterior Analytics of ARISTOTLE, with Notes and Introduction, post 8vo. cl., 5s* Oxford, 1850

- 13548 **POTAIN** (Le Docteur, *ex-chirurgien principal d'armée*) *RELATION AÉROSTATIQUE, dédiée à la NATION IRLANDAISE; with fine and large lithographic portrait by Boilly after Bordes, and view of the balloon in mid-air, 4to. (pp. 32), hf. cl., uncut, with the original cover lettered 'Historique d'un Voyage Aérien' bound in (FINE COPY); VERY RARE, £3. 3s* 1824

The above copy contains 'Document et Pièces principales à l'Appui du présent Mémoire' (pp. 6), containing the deliberations and correspondence of the Irish Committee, which included the ill-fated Lord Edward Fitzgerald, the Earl of Moira (afterwards Marquess of Hastings), and many other well-known Irishmen.

The work, as well as the ascent (at Dublin, June 17, 1785), was unknown to Hatton Turnor.

- 13549 **POTT** (Johann Heinrich; *Berlin*) *EXERCITATIONES CHYMICAE, de Sulphuribus Metallorum, de Auripigmento, de Solutione Corporum Particulari, de Terra Foliata Tartari, de Acido Vitrioli Vinoso, et de Acido Nitri Vinoso, sparsim hactenus editæ, jam vero collectæ, restitutæ, a Mendis repurgatæ, variisq; Notis, Experimentis et Discussionibus adauctæ, 4to. contemporary calf gilt (fine copy); rare, 12s 6d* Berolini, 1738

'Stahl's disciple and pupil, Johann Heinrich Pott, enriched chemistry by many valuable observations. . . . With regard to the nature of phlogiston itself, he expressed the opinion that it was 'a variety of sulphur'.'—*Prof. E. v. Meyer*.

'Pott vereinigte eine gründliche Kenntniss der chemischen Wissenschaft, wie sie seiner Zeit vorlag, mit einem rastlosen Streben nach Förderung derselben. Er hatte eine ungemeine Geschicklichkeit in dem praktischen Theile der Chemie, eine unermüdete Ausdauer bei den langwierigsten Untersuchungen; und was er auf diese Weise neu erlangt hatte, theilte er mit einer Offenheit und Klarheit mit, welche für die damalige Zeit hoch anzuschlagen ist.'—*H. Kopp*.

- 13550 — **LITHOGÉOGNOSIE, ou EXAMEN CHYMIQUE des PIERRES et des TERRES en général, et du Talc, de la Topaze, et de la Stéatite en particulier, avec une Dissertation sur le Feu et sur la Lumière. Ouvrages traduits de l'Allemand: CONTINUATION de la LITHOGÉOGNOSIE PYROTECHNIQUE, où l'on traite plus particulièrement de la Connoissance des Terres et des Pierres, et de la Manière d'en faire l'Examen, 2 vols. 12mo. contemporary French calf gilt, 12s 6d 1753**

The author was a disciple of G. E. Stahl, and in the above work did much to promote a knowledge of chemical analysis. He was the first to treat of bismuth and its compounds, and discovered silicic acid, although it was recognised as such only in 1811 by James Smithson, F.R.S., founder of the Smithsonian Institution.

- 13551 **[POUCHET (Georges)]** *ECLAIRAGE par la BOUGIE ÉLECTRIQUE [JABLOCHKOFF], des Voies Publiques, des Grands Magasins, Cafés, etc. etc.; with woodcuts, roy. 8vo. (pp. 47), sewn, 2s* Lille, 1878

The Jablochkoff 'Candle' was an ingenious expedient for making the Arc Lamp handier for general use before the practicable development of the Glow Lamp by Swan and Edison.

'So they lit up the heights

With Jablochkoff lights,

And now I suppose there's a war.'

—*Anglo-Indian verses temp. the annexation of Burma.*

- 13553 **POSTLETHWAITE** (John, F.G.S.), and John George **GOODCHILD**, F.G.S.: On some TRILOBITES from the SKIDDAW SLATES, with 4 plates, 8vo. (pp. 15), *sewn*, 1s 6d [1886]

THE NUMBER OF THE BEAST:

- 13554 **POTTER** (Francis, pr., F.R.S.) INTERPRETATIO NUMERI 666, quâ, tum Modus unicus, quo Numerus hic interpretandus est, perspicue probatur et demonstratur; tum ostenditur, Numerum hunc perfectum esse et accuratum Characterem, quo verè exactè et essentialiter, describitur Status ille et Regimen, cui reliquæ omnes ANTICHRISTI Notæ conveniunt; with engraved symbolic title, 12mo. old calf, 8s 6d Amstelodami, 1677

'A wild but ingenious theory of the Number of the Beast, connecting 25, the 'approprique' square root of 666, with various Romish institutions. Pepsy, who read the work in November 1666, considered it 'mighty ingenious'.—D. N. B.

Joseph Mead, the Biblical scholar (1586-1638), in a commendatory note appended to the work, declares it to be 'omnium felicissimus qui in mundum hactenus prodierunt: nec legi potest (nisi ab eis qui nolunt credere) sine summa admiratione'.

- 13555 **POTTER** (Richard, Prof. Astronomy, Univ. Coll., Lond.) ELEMENTARY TREATISE ON MECHANICS, with diagrams, 8vo. cl., 2s 1846

- 13556 ——— ELEMENTARY TREATISE ON OPTICS, with the Construction of Optical Instruments, with woodcuts, 8vo. cl., 3s 1847

- 13557 ——— PHYSICAL OPTICS, or the Nature and Properties of Light, with 161 woodcuts, 8vo. cl., 3s 1856

- 13558 **POTTER** (Thomas; Clerk of Works to Lord Ashburton) CONCRETE: its Use in Building, and the Construction of Concrete Walls, Floors, etc.; New Edition, rewritten, with numerous woodcuts, 2 vols. post 8vo. in 1, cl., 5s Winchester [1911]

- 13559 ——— THE CONSTRUCTION OF SILOS, and the Compression of Green Crops for Silage, with 62 woodcuts, sq. post 8vo. cl., with author's inser., 3s 6d [1886]

English farmers owed their introduction to ensilage to a succession of wet summers in the 'Eighties.

- 13560 **POTTER** (W. J.) CONCURRENT PRACTICAL AND THEORETICAL GEOMETRY, containing the Substance of Euclid I—XI, treated both experimentally and formally, with diagrams, Parts I—III in 1 vol. thick cr. 8vo. cl., 2s 6d 1910

- 13561 **POUILLET** (Claude Serrais Mathias; de l'Institut), et V. LE BLANC: PORTEFEUILLE INDUSTRIEL DU CONSERVATOIRE des ARTS et MÉTIERS, ou Atlas et Description des Machines, Appareils, Instrumens, et Outils employés en Agriculture et dans les differens Genres d'Industrie, 1^{ER} VOL. (seul paru), roy. 8vo. hf. morocco gilt (atlas missing), 4s 1834

- 13562 **POUSSIN** (Major Guillaume Tell, U.S. Army) CHEMINS de FER AMÉRICAINS: Historique de leur Construction, Prix de Revient et Produit, Mode d'Administration adopté, Résumé de la Législation que les régit; with folding map and 7 plates of permanent way, 4to. hf. calf, with auto. of George Rennie, C.E., F.R.S. (SCARCE), £1. 1s 1836

Very interesting as probably the first giving details and statistics of the Railways of the United States. The map shows the very extensive system already open or under construction.

The author, according to Allibone, 'soon after the downfall of Napoleon I., accompanied General Bernard to the United States, and assisted him there in the construction of military works, and became a naturalized citizen.'

- 13563 **POWALKY** (Carl Rudolf) NEUE UNTERSUCHUNG des VENUSDURCHGANGES von 1769 zur Bestimmung der Sonnenparallaxe, 4to. (pp. 28), *sewn*, 2s 6d Kiel, 1864

'Powalky in 1864 discussed 44 observations, made at nineteen stations.'—R. A. Proctor.

- 13564 **POWELL** (Baden, pr., Oriol Coll.; F.R.S., Savilian Prof. Geometry; 'Essayist and Reviewer,' father of Lt.-Gen. Sir R. S. S. Baden-Powell ['B.P.']) On the ACHROMATISM of the EYE, 8vo. (pp. 32), *sewn*, 2s 6d Ashmolean Soc., Oxford, 1834

- 13565 ——— ANOTHER COPY, with 1-page Pamphlet: On the Achromatism of the Eye, in Reply to some Remarks in the 'Philosophical Magazine', 8vo. *sewn*, with author's inser., and auto. of Dr. P. M. Roget, F.R.S., 3s 6d 1834-5

- 13566 ——— ELEMENTARY TREATISE on the GEOMETRY of CURVES and CURVED SURFACES, investigated by the Application of the Differential and Integral Calculus, with folding plate, 8vo. cl., with auto. of F. J. Jervis-Smith, pr., F.R.S., 5s Univ. Press, ibidem, 1830

Designed as a continuation to the 'Elements of Curves', and 'Short Treatise'.

- 13567 [——] THE ELEMENTS of CURVES: comprising, I. the Geometrical Principles of the Conic Sections, II. an Introduction to the Algebraic Theory of Curves, with 7 folding plates, 8vo. boards, uncut, 5s Clarendon Press, ib., 1828

Professor Baden Powell's first published work, issued soon after his appointment to the Savilian chair of geometry at Oxford, which he held till his death.

- 13568 ——— GENERAL and ELEMENTARY VIEW of the UNDLATORY THEORY, as applied to the DISPERSION of LIGHT, and some other Subjects, with coloured folding front., 8vo. hf. calf, or, boards, uncut, 7s 6d 1841

The author was the discoverer of 'Powell's Bands', which are noticeable in some cases of interference.

- 13569 ——— HISTORY of NATURAL PHILOSOPHY, from the earliest Periods, with vignette by Finden after Corbould, fcap. 8vo. cl., 3s 6d 1824

- 13570 ——— ANOTHER COPY, prize calf extra, 6s 6d

This was the prize copy from University College, London, to LORD LISTER, and is signed by Prof. Richard Potter.

- 13571 ——— ON a NEW CASE of the INTERFERENCE of LIGHT, with 5 diagrams, 4to. (pp. 14), *sewn*, 3s 6d 1848

- 13572 ——— ANOTHER COPY, with special Title, and author's inser. to L. A. Cauchy, 4s 6d

This memoir contains the discovery of a curious phenomenon of the interference of light, known as 'Powell's Bands.'

A complete explanation of it was given by Sir G. G. Stokes, F.R.S., in the same year.

- 13573 ——— ON the REPULSIVE POWER of HEAT, roy. 4to. (pp. 5), *sewn*, 2s 1834

- 13574 [——] SHORT TREATISE on the PRINCIPLES of the DIFFERENTIAL and INTEGRAL CALCULUS, with plate, 8vo. boards, uncut (scarce), 7s 6d Univ. Press, Oxford, 1829

The first Oxford textbook on the calculus in which the differential notation—introduced into use at English universities by the Cambridge Analytical Society (v. No. 9245 ante)—was used.

- 13576 [POWELL (Thomas)] HUMANE INDUSTRY: or a HISTORY of most MANUAL ARTS, deducing the Original, Progress, and Improvement of them; furnished with Variety of Instances and Examples, shewing forth the Excellency of Human Wit, 12mo. *very sound copy in old mottled calf (RARE)*, £1. 1s
H. Herringman, 1661

Containing many other interesting subjects: The Invention of Dials, Clocks, Watches, etc. (pp. 1-13): Of some curious Spheres and Representations of the World (pp. 14-23): Of sundry Machines and Artificial Motions, by Water and Air (pp. 24-45): Of the Art of Spinning and Weaving (pp. 84-101): Of the Invention of Glass (pp. 133-43): Of the Invention of Shipping and Sailing: also of the Mariner's Compass (pp. 144-63).

- 13577 POWELL (Lt.-Col. William H., *U.S. Army*) THE ARMY OFFICER'S EXAMINER: containing Questions and Answers on all Subjects prescribed for an Officer's Examination; with Rules to guide Boards of Examination, cr. 8vo. cl., 4s (p. 17s nett)
New York, 1894

- 13578 POWER (Henry, M.D., F.R.S.) EXPERIMENTAL PHILOSOPHY: containing NEW EXPERIMENTS, MICROSCOPICAL, MERCURIAL, and MAGNETICAL, with some Deductions and Probable Hypotheses, raised from them, in Avouchment and Illustration of the now famous ATOMICAL HYPOTHESIS, *with folding copperplate (mounted on canvas), and 2 woodcuts, sm. 4to. old calf gilt (newly and neatly rebacked)*; RARE, £1. 1s
T. Roycroft, 1664

The author's only published work.

'The following observations seem to make out, that the Minute particles of most (if not all) Bodies are constantly in some kind of motion, and that motion may be both invisibly and unintelligibly slow, as well as swift, and probably is as unseparable an attribute to Bodies, as well as Extension is.'—*Preface*.

The second and third books have a separate title, which is dated 1663. At end is: Subterraneous Experiments: or, Observations about Coal-Mines. There is an interesting 'Conclusion', containing reflexions on contemporary learning.

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John James the translator was clerk of the works to Greenwich Hospital, and held the high office of Surveyor to St. Paul's Cathedral and to Westminster Abbey; he supervised the fifty new Churches built in the Greater London of Queen Anne's day, the first of the only two occasions on which the post-Reformation Church of England received a State subsidy; and he designed St. George's, Hanover Square and Orleans House, Twickenham.

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Oxonii, e Theatro Sheldoniano, 1682

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The above is the first edition of the original Greek, as only a Latin translation had hitherto been published, at Venice in 1562 (p. No. 5830 ante).

* Ptolemæus s'est proposé de fonder une doctrine éclectique, dans laquelle il faisait entrer les principes opposés de Pythagore et d'Aristotele (p. Nos. 5830 and 11726-7 ante), s'efforçant de démontrer que chacun avait un objet et un mode d'action différents.'—*Fétiis*.

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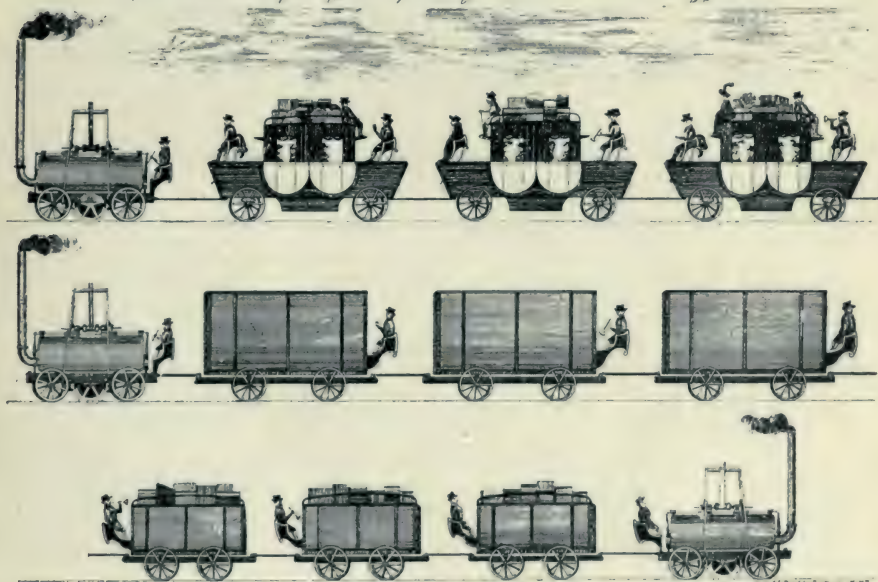
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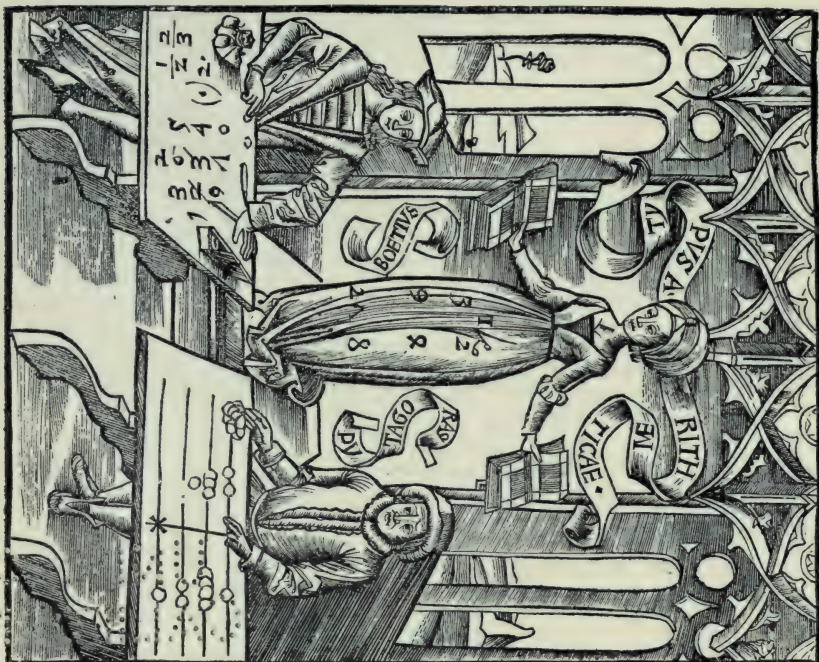
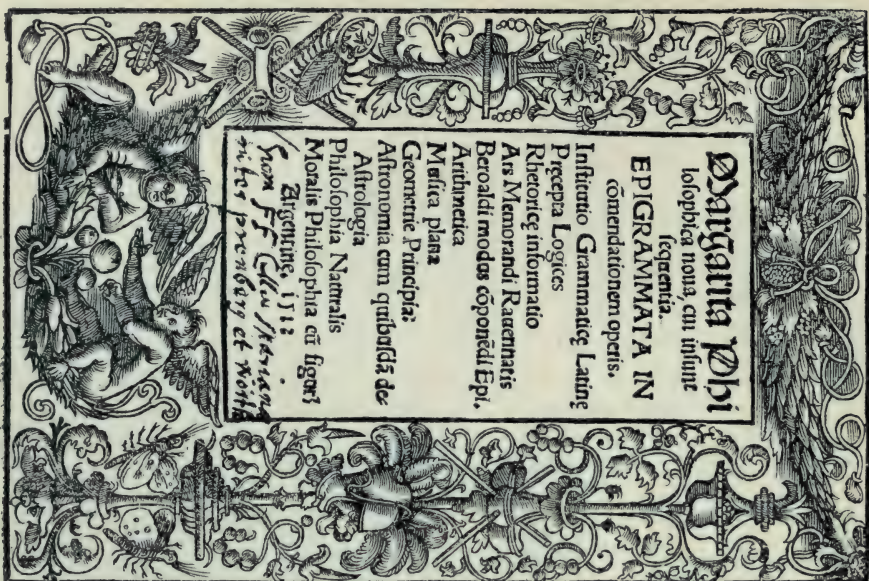


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In the same way as Ramus first demolished the belief in Aristotelian infallibility (for which he was expelled from the University of Paris and banished from France), so he first showed in his *Geometria* the shortcomings of the Euclidean geometry. He was one of the victims of the Massacre of St. Bartholomew.

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- 13954 **REA** (Roger) THE SECTOR and PLAIN SCALE, COMPARED: Containing I. The Description of all the Lines on them. II. The True Use of the Sector. III. All the preceeding Geometrical Problems and Cases of Right Lin'd Trigonometry compared by the Plain Scale, and IV. performed Arithmetically, without the Help of any Sort of Tables, with so much of Decimal Arithmetick, and the Extraction of the Square Root, as is necessary for the Working of Arithmetical Trigonometry; 2nd Edition, *with 3 folding copperplates, 12mo. (pp. 102), sewn, 8s 6d* 1717
Unknown to Poggendorff, Watt, Allibone, and Lowndes.
- 13955 **READ** (Carveth) On the THEORY of LOGIC: an Essay, *cr. 8vo. cl., with Herbert Spencer's bookstamp on title (scarce), 8s 6d* 1878
Professor Carveth Read's first publication, and 'the most real addition that has been made on the subject since the appearance of Prof. Bain's 'Logic', and one that cannot henceforward be overlooked by any one interested in the logic of science. —Academy.
- 13956 **READ** (John) METEOROLOGICAL JOURNAL, principally relating to ATMOSPHERICAL ELECTRICITY, kept at Knightsbridge, from the 9th of May, 1790, to the 8th of May, 1791, *with plate by Basire, 4to. (pp. 32), sewn, 4s 6d* 1792
'To him we owe a very elaborate series of researches on atmospherical electricity.' —Sir John Herschel.
- 13957 **RECLUS** (Élisée) THE EARTH: a Descriptive History of the Phenomena of the Life of the Globe, translated by B. B. WOODWARD, and edited by HENRY WOODWARD; 3rd Edition, *with 24 full-page coloured and 230 other maps, 2 vols. 8vo. cl., 5s 6d (p. £1. 1s)* 1877
Containing chapters on the Earth as a Planet; the Land; the Circulation of Water; and Subterranean Forces.
- 13958 ——— THE OCEAN, ATMOSPHERE, and LIFE, translated by B. B. WOODWARD, and edited by HENRY WOODWARD, F.R.S., *with 207 woodcuts and maps, 2 vols. 8vo. cl., 5s 6d (p. £1. 1s)* 1873

- 13960 **READE** (Joseph, M.D.) EXPERIMENTAL OUTLINES for a NEW THEORY of COLOURS, LIGHT and VISION: with Critical Remarks on SIR ISAAC NEWTON's OPINIONS, and some NEW EXPERIMENTS on RADIANT CALORIC, with coloured prismatic front., and diagrams, 8vo. cl., uncut (rare), 12s 6d 1818

The author tries to prove that the analysis of light and heat by the glass prism is a delusion. The following are some of his axioms: 'Blackness is compounded of blue, red and yellow rays, and there is as strong a reflection from black as from any other coloured substance' (p. 1): 'Atoms change colour with every change of condensation' (p. 164): 'The colours in Newton's experiment were occasioned by the black light, reflected from the inner margin of the hole in the quire of paper' (p. 258). There are nevertheless some sound remarks in this painstaking paradox.

- 13961 **RECKEN** (W. A.) Das GEHEIMNISS, GUSSEISEN . . . zu VERSTÄHLEN: Die KUNST, alle Sorten STAHL . . . auf eine sehr schnelle und sichere Weise zu SCHNEIDEN—2 pamphlets, 12mo., unbound, 3s 6d Quedlinburg, 1839

- 13962 [**RECORDE** (Robert, M.D.) The CASTLE of KNOWLEDGE [on reverse of title:] containing the Explication of the Sphere, bothe celestiall and materiall, and diuers other Things incident thereto.. With sundry pleasant Proofoes and certaine newe Demonstrations not written before in any vulgare Woorkes], first edition, with numerous good woodcuts and diagrams, 4to. hf. bound (binding damaged, title, dedication to Q. Mary (1 l.), and l. of Errata wanting, also some ll. stained); VERY RARE, £3. 3s [colophon:] Reginalde Wolfe, 1556

This book contains a dedication in English to Queen Mary, and another in Latin to Cardinal Pole. D. N. B. erroneously mentions 1561 as the date of the first edition, a statement palpably wrong, as Queen Mary's accession did not take place until 1553, and Cardinal Pole was consecrated Archbishop of Canterbury (the work being dedicated to him as such) only after App. Cranmer's execution in 1556.

He was probably the first, certainly one of the first, in England to adopt the Copernican system, which was only put forward as an hypothesis in 1543; though he seems to have thought the world not quite ripe for such a doctrine, and was perhaps afraid to avow it very distinctly. He advises his reader not to rely too much on Ptolemy; but it appears that he had not quite abandoned astrology. . . . In his prefaces, introductions, and conclusions he frequently indulges in very passable poetry (a beautiful and dignified hymn from *The Castle of Knowledge* is quoted in Collier's Bibliographical Account).—D. N. B.

- 13963 — The GROUND of ARTS teaching the perfect Worke and Practise of ARITHMETICKE, both in WHOLE NUMBERS and FRACTIONS, after a more easie and exact Sort, than hitherto hath bene set forth. And now lately diligently corrected and beautified with sundry new Rules and necessarie Additions [by JOHN DEE]: And further endowed with a third Part of Rules of Practise, abridged into a briefer Method than hitherto hath bene published: with diuerse such necessarie Rules as are incident to the trade of MERCHANTISE. Whereunto are also added diuerse Tables and Instructions that will bring great Profit and Delight vnto Marchants, etc. etc., by JOHN MELLIS, black letter, 12mo. old calf, rebounded, £4. 10s John Harrison, 1605

This edition is not mentioned in a list of 27 different ones in D. N. B., nor is there a copy in the British Museum.

- 13964 — NEW EDITION, with a COMPENDIUM of INTEREST, and Table of Board and Timber Measure, calculated by R[OBERT] N[ORTON], and now diligently perused, corrected, illustrated and enlarged; with Appendix of FIGURATE NUMBERS, and the Extraction of their ROOTES, by ROBERT HARTWELL, Philomathematicus, partly black letter, thick 16mo. old vellum, £3. 10s

printed by I. B. for Roger Jackson, 1618

The first edition with Robert Norton's additions. There is no copy in the British Museum Catalogue of English Books to 1640.

- 13965 — NEW EDITION, now the second Time diligently perused, corrected, illustrated, and enlarged; with Appendix of Figurate Numbers, and the Extraction of their Rootes, according to the Method of CHRISTAN [sic] VRSTITIUS; by ROBERT HARTWELL, and NEW TABLES of INTEREST vpon Interest, after 10s for 100s; with the true Value of ANNUITIES to be bought or sold, present, Respited, or in Reversion: By R. C., partly black letter; 12mo. old calf, gilt ornaments on sides (back rubbed and joints cracked, also stamp on title; otherwise a LARGE AND SOUND COPY), £2. 15s

The first edition enlarged by 'R. C.'

- 13966 — NEW EDITION, with new Tables of Interest vpon Interest, after 10 and 8 per 100; with the true Value of Annuities to be bought or sold present, Respited, or in Reversion: the first calculated by R. C. but corrected, and the latter diligently calculated by ROBERT HARTWELL, Philomathemat., partly black letter; 12mo. contemporary sheep (4 ll. in MS. and title slightly mended), £1. 5s

A rare edition, not mentioned in D. N. B., nor is there a copy in Brit. Mus. C. E., B. to 1640.

- 13967 — RECORDS ARITHMETIC: or the Ground of Arts: with New Tables of Interest after 10. 8. and 6. per 100; with the True Value of Annuities, to be bought or sold present, Respited, or in Reversion: the first calculated by R. C. but corrected, and the latter diligently calculated by R. HARTWELL, partly black letter; thick 12mo. old calf (rebacked and joint cracked, otherwise a very sound copy), with auto. of Prof. W. H. Lloyd Tanner, F.R.S., £1. 12s 6d

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- 13968 — REPRINT, partly black letter; thick 12mo. contemporary sheep (a very sound and clean copy), £1. 10s

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- 13969 — ANOTHER COPY, hf. bound (title mounted and slightly defective), with auto. of Samuel Roberts, F.R.S., £1. 1s

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He published an arithmetic, termed the *Grounde of Artes*, in which he employed the signs + to indicate excess and - to indicate deficiency. . . . In this book the equality of two ratios is indicated by two equal and parallel lines, whose opposite ends are joined diagonally, e.g. by Z'—W. W. R. Boll.

— v. HATTON, nos. 1808 and 9011 ante.

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- Mainly an attack on Newton's *Principia*. 'There is no mathematical demonstration which even attempts to show rigidly how a gravitating body could revolve round a centre of attraction. The point has been taken for granted by Sir Isaac Newton.'—p. 10.
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Basileæ, per Henr. Petri et Petrum Pernam, 1561

The first work is the THIRD EDITION of Regiomontanus's trigonometry, a second having been published in 1546. Appended is 'Tractatus super Propositiones Ptolemæi de Sinibus et Chordis', by (GEORG PETERBACH (Purbachius), the teacher of Regiomontanus.

'This is the earliest modern systematic exposition of trigonometry, plane and spherical, though the only trigonometrical functions introduced are those of sine and cosine'.—W. W. R. Ball.

Regiomontanus and Purbach adopted the Hindoo sine in place of the Greek chord of double the arc. Regiomontanus emphasised the use of the tangent in trigonometry, and following out some ideas of his master, calculated a table of tangents . . . He was the author of a complete treatise on trigonometry, containing solutions of both plane and spherical triangles. The form which he gave to trigonometry has been retained, in its main features, to the present day. . . . Regiomontanus ranks among the greatest men that Germany has ever produced'.—Prof. Cajori.

Nothing is known of the author of the second work, who is not mentioned by Montucla or Poggendorff (who mistakenly attributes the work to Regiomontanus), or in other bibliographies. It forms an appendix to the first work, and is especially interesting for its numerous well-executed woodcuts, which include many on artillery bombarding fortresses, which are still based on the contemporary notion that the projectile travels in a straight line, and after its strength is spent, drops vertically (v. No. 8212 ante).

Poggendorff mentions a Johannes Noviomagus (Jan Bronckhorst), 1494-1570, who for some time professed mathematics at Rostock ; but there is no evidence to connect him with the above Daniel Santebech Noviomagus.

- 13994 **REGNAULT (Henri Victor, de l'Institut; F.R.S.)** COURS ÉLÉMENTAIRE de CHIMIE, première édition ; with several hundred woodcuts, 4 vols. fcap. 8vo. hf. calf gilt, 7s 6d [1847-9]
Pp. 7-55 contain an excellent introduction to crystallography.

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An admirable treatise which was soon translated into nearly every European language.

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- 13998 **REGNAULT (Noël, s.j.)** PHILOSOPHICAL CONVERSATIONS : or, a New System of Physics, by Way of Dialogue, translated, with Notes, by THOMAS DALE, M.D., with numerous copperplates, 3 vols. 8vo. old sheep (backs slightly damaged), 8s 6d 1731

This treatise on physics, which is still based on Descartes's theory of vortices, was very popular in its time, and contains many interesting experiments.

- 13999 **REGNIER (Edme)** DESCRIPTION et USAGE du DYNAMOMÈTRE, pour connaître et comparer la Force relative des Hommes, celle des Chevaux et de toutes les Bêtes de Trait ; enfin pour juger la Résistance des Machines, et estimer les Puissances Motrices qu'on vent y appliquer ; with folding copperplate, 4to. (pp. 20), sewn (rare), 10s 6d An VI [1798]

Containing the invention of the spring dynamometer for measuring muscular strength, etc. 'Regnier construisit son premier dynamomètre à la demande de Buffon et de Guéneau de Montbelliard, qui avaient reconnu, pour les recherches qu'ils se proposaient de faire sur la force musculaire, l'imperfection des instruments analogues, précédemment imaginés par G. Graham, Desaguliers et Leroy.'—Diogr. Gén.

- 14000 **REICH (Ferdinand, Bergakademie Freiberg)** FALLVERSUCHE über die UMDREHUNG der ERDE, angestellt in dem DREI-BRÜDERSCHACHTE bei FREIBERG ; with 5 folding plates, 8vo. hf. cl. (scarce), 10s 6d Freiberg, 1832

The author's was the last of the classic series of experiments made by Robert Hooke, G. B. Guglielmini in 1791, and Benzenberg in 1802 (v. No. 338 ante) to ascertain the Easterly motion of a falling body, caused by the rotation of the earth. All these experiments 'showed, in addition to the predicted Easterly deviation, also a small Southerly displacement. For this no satisfactory explanation has yet been given' (Prof. Cajori).

- 14001 **REICHENBACH (Karl Freiherr v.)** RESEARCHES on MAGNETISM, ELECTRICITY, HEAT, LIGHT, CRYSTALLIZATION, and CHEMICAL ATTRACTION, on their Relations to the VITAL FORCE, translated and edited, with Notes and Appendix, by WILLIAM GREGORY, M.D., F.R.S.E., with 3 folding plates, and woodcuts, 8vo. cl., 6s 1850

This is the work that contains the author's imaginary discovery of *oid*, a physical force intermediate between electricity, magnetism, heat, and light, to which the phenomena of hypnotism (then 'mesmerism') are to be due. In its narrower sense it agrees perhaps best with Prof. Forel's *neuroklymes*.

The subject may still offer a field of speculation to the scientific mystic in connexion with the undiscovered octaves of ether waves.

It consists of 2 parts, the first treating of 'Physico-Physiological Researches on the Imponderables, in their Relation to the Vital Force', and the second of 'Magnetic or Odylie Light.'

The author is generally known as the discoverer of creosote and paraffin.

- 14003 **REICHENBACH** (Karl Freiherr v.) PHYSICO-PHYSIOLOGICAL RESEARCHES on the DYNAMICS of MAGNETISM, ELECTRICITY, HEAT, LIGHT, CRYSTALLIZATION, and CHEMISM in their Relations to Vital Force, with Preface and Critical Notes by JOHN ASHBURNER, M.D., *with woodcuts*, thick 8vo. cl. (*scarce*), 10s 6d 1851
A rival translation of the 'Researches', with an interesting preface in favour of mesmerism.
- 14004 **REID** (David Boswell, M.D., F.R.S.E.) ELEMENTS of CHEMISTRY, Theoretical and Practical; 3rd Edition [greatly enlarged], *with 609 woodcuts*, 8vo. hf. calf (*back torn off*), 3s *Edin.*, 1839
- 14005 ———, TESTIMONIALS in Favour of, for the PROFESSORSHIP of CHEMISTRY in the UNIVERSITY of EDINBURGH, 4to. (pp. 43), *sewn*, 1s 6d *ibidem*, 1843
Dr. Reid did not get the professorship, but he did get the commission for the ventilation of the new Houses of Parliament, the parent of all the schemes at which the delicate legislators of the Lower House have been grumbling ever since. In 1856 he went to the United States as medical inspector to the Sanitary Commission, and died as he was starting on a tour of inspection at the beginning of the Civil War.
- 14006 **REID** (Edward Waymouth, *Univ. Coll., Dundee*), and **Fred. J. HAMBLY**: On TRANSPIRATION of CARBON DIOXIDE through the SKIN of the FROG, *with 3 diagrams*, roy. 8vo. (pp. 14), *sewn*, 1s 6d 1895
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(p. 6s)
- 14008 **REID** (John Simpson; *Armour Institution*) COURSE of MECHANICAL DRAWING, *with 168 woodcuts*, 8vo. cl., 3s 6d (p. 8s 6d nett) *New York*, 1898
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The work laid down, for the guidance of seamen, those broad and general rules which are known as the 'law of storms'.—*Col. Vetch*.
The book is no less interesting for containing some of the earliest work in wood-engraving, representing ships in distress, by WILLIAM JAMES LINTON.
- 14010 **REIFF** (Richard) Ueber den EINFLUSS der CAPILLARKRÄFTE auf die FORM der OBERFLÄCHE einer BEWEGTEN FLÜSSIGKEIT: Inaugural-Dissertation, 4to. (pp. 31), *sewn*, 2s *Tübingen*, 1879
- 14011 **REIMANN** (M.; *editor of the 'Färber-Zeitung'*) On ANILINE and its DERIVATIVES: a Treatise on the Manufacture of Aniline and Aniline Colours, with APPENDIX: The Report on the Colouring Matters derived from Coal Tar, shown at the French Exhibition, 1867, by A. W. v. HOFMANN, F.R.S., G. DE LAIRE, and CH. GIRARD; the whole revised and edited by [SIR] WILLIAM CROOKES, P.R.S., *with 7 woodcuts*, 8vo. cl. (*cover slightly damaged*); *scarce*, 8s 6d 1868
The first treatise on aniline dyes, containing much historical information. The 'Report' is not contained in the German edition.
- 14012 ——— La TEINTURE de la SOIE sous Forme de Fils, Soie Cardée et en Pièces, en Noir, Couleurs, et Blanc, etc. etc. [Textes Français et Allemand], 4to. (pp. 42), *unbound*, 2s 6d *Berlin*, s. d.
- 14013 **REINHERTZ** (Carl) Ueber die ELASTISCHE NACHWIRKUNG beim FEDERBAROMETER: Inaugural-Dissertation; *with 14 diagrams*, 4to. *sewn*, 2s 6d *Marburg*, 1887
- 14014 **REINHOLD** [*hic RHEINHOLDUS*] (Erasmus; *Univ. Wittenberg*) PRIMUS LIBER TABULARUM DIRECTIONUM, discentibus Prima Elementa Astronomie, necessarius et utilissimus. Hic insertus est Canon II. ad singula Scrupula Quadrantis propagatus. Item Nova Tabula Climatum et Parallelorum, item Umbrarum. Appendix Canonum II. Libri Directionum, qui in Regiomontani Opere desiderantur; *with diagrams*, thick 4to. *old Italian vellum* (some ll. wormed, blank bottom corners worn away, and title stamped); RARE, 17s 6d *Tübinge, Hæredes Utr. Morhardi*, 1554
The author, a friend of Copernicus, and professor of mathematics and astronomy at Wittenberg, is chiefly known as the compiler of the Prutenic Tables.
- 14015 **REINOLD** (Arnold William), and Sir Arthur William RÜCKER, F.R.S.: On the ELECTRICAL RESISTANCE of THIN LIQUID FILMS, with a Revision of NEWTON'S TABLE of COLOURS, *with 2 plates and 4 diagrams*, roy. 4to. (pp. 43), *sewn*, *with authors' inscr.*, 3s 1891
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Of interest in connexion with 'cone-in-cone' structures.
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- 14020 ——— INTRODUCTION to the STUDY of [INORGANIC] CHEMISTRY, *with 49 woodcuts*, post 8vo. cl., 2s 6d (p. 6s 6d) 1886
- 14021 ——— INTRODUCTION to the STUDY of the COMPOUNDS of CARBON: or ORGANIC CHEMISTRY [new Edition, partly rewritten], *with 17 woodcuts*, post 8vo. cl., 3s (p. 6s 6d) 1896
- 14022 ——— PRINCIPLES of THEORETICAL CHEMISTRY, with special Reference to the CONSTITUTION of CHEMICAL COMPOUNDS, cr. 8vo. cl. (o. p.), 3s (p. 6s) 1877
- 14023 ——— On the TWO ISOMERIC CHLORIDES of ORTHOSULPHOBENZOIC ACID, IV—VI, roy. 8vo. (pp. 38), *sewn*, 2s [Baltimore,] 1896

- 14025 **REINSCH** (Paulus Friedrich) NEUE UNTERSUCHUNGEN über die MIKROSTRUKTUR der STEINKOHLE des CARBON, der DYAS und TRIAS: Beiträge zur Aufhellung des Ursprungs und der Zusammensetzung dieser Mineralkörper, sowie zur Kenntniss des einfachsten Pflanzenlebens der Vorwelt; with 94 plates (1 folding), roy. 4to. hf. cl., £1. 10s (p. M. 50) Leipzig, 1881
- 14026 **REISCH** (Gregor); *confessor of the Emperor Maximilian I.* MARGARITA PHILOSOPHICA NOVA, cui insunt sequentia. Epigrammata in commendationem operis. Institutio Grammaticæ Latine. Præcepta Logices. Rhetoricæ informatio. Ars Memorandi Ravennatis. Beroaldi modus componendi Epi. ARITHMETICA. MUSICA PLANA. GEOMETRIE PRINCIPIA. ASTRONOMIA, cum quibusdā de Astrologia. PHILOSOPHIA NATURALIS. Moralis Philosophia cū figuris; finely printed in gothic letter; title within woodcut border, large woodcut title to each Book, and numerous very fine and large woodcuts, also plain song and folding table of diapason, 4to. old oaken boards, covered with contemporary pressed pigskin, richly ornamented on sides (one table wanting, binding slightly damaged and some ll. slightly water-stained on lower margin, otherwise a REMARKABLY SOUND, CLEAN AND TALL COPY); very rare, £8. 8s [col.:] Argentine, Joa. Griningier, 1512
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- Ten editions of this work are known; those of 1496, 1503, 1504, 1508, 1512, 1515, 1517, 1525, 1533, and 1599.
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Nicholas Hawksmoor was the 'scholar' and greatest pupil of Wren, and helped in building St. Paul's. He did much work at Queen's and All Souls Colleges at Oxford, but his most interesting works to Londoners are St. Mary Woolnoth in Lombard St. and his many East End churches under Queen Anne's 'Fifty' scheme, which include St. Anne's, Limehouse, St. George's in the East, and that noble church, Christ Church, Spitalfields.
The above volume is specially interesting for having belonged to JOHN RENNIE, who afterwards actually built New London Bridge, still the noblest bridge in England. The works added by him are: Memorial concerning Hexham Bridge, by JOHN SMEATON, F.R.S., with a brief Reply by a Freeholder (1782): A Copy of Mr. Myles Opinion and Report to the Magistrates of Northumberland respecting the Practicability of building a permanent Bridge at Hexham: Copy of a Letter to Mr. L. Becker, Director and First Secretary of the Batavian Society for Experimental Philosophy at Rotterdam: Treatise on Rivers and Canals, by THEODORE AUGUSTUS MANN.
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This Manuscript was probably written on or immediately after leaving Edinburgh University, when he established a business on his own account as a millwright.

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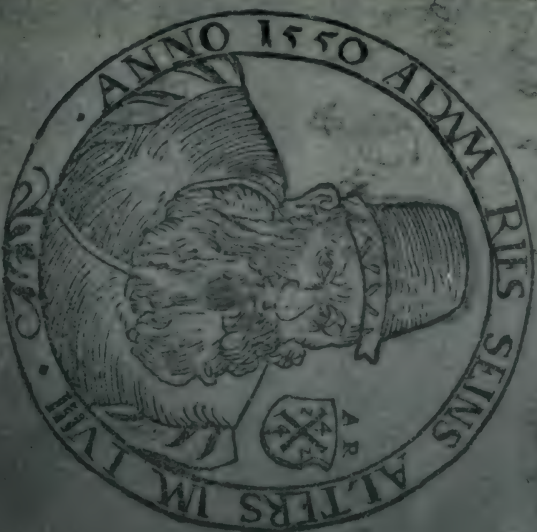
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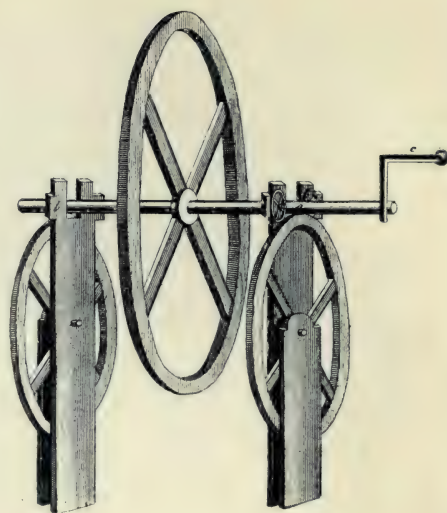
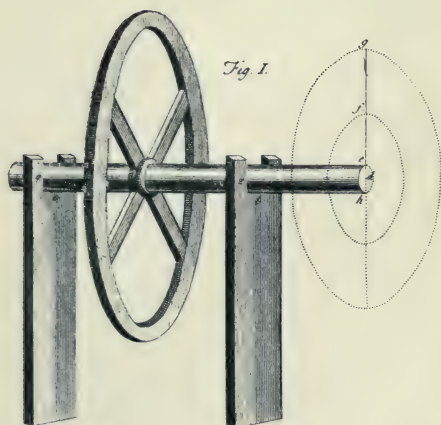
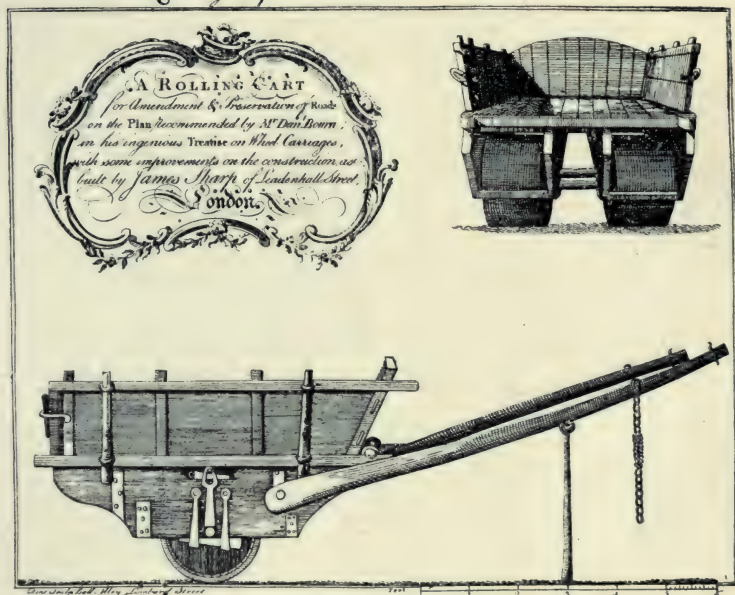


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- 'Er hat zu vereinigen und zweckdienlich zu ordnen gewusst, was vorhanden war. Aus seiner Anordnung konnte der Rechenunterricht die methodischen Vorschriften sich bilden, welche heute als selbstverständlich gelten. Die Vorschrift des Aufsteigens vom concreten Denken zum abstrakten wird in jedem Rechenunterrichte heute beachtet; bei Riese ist das Rechnen mit Rechenpennigen dem mit Ziffern vorausgeschickt. Die zweite Grundregel ist die des Übergangs vom Einfachen zum Zusammengesetzteren, und auch diese war Riese's Rechenbuch zu entnehmen. . . . Michael Stifel nannte seine Aufgaben 'holdselig' und entnahm sie ihm für sein eigenes Werk. Andere folgten diesem Beispiele. . . ., und so galt hinfür für einen Meister der Rechenkunst, wer Adam Riese's Rechnung nach der Länge vollständig durchgearbeitet hatte'.—*Prof. M. Cantor*.
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This work contains the account of the electric telegraph invented by the author, which transmitted signals from his house at Hammersmith (occupied later on by WILLIAM MORRIS, the poet, and known as 'Kelmcott House') over a system of wires 8 miles long, by observing at one end the divergence of a pair of pith balls when a charge of electricity was sent into the other.
'Ronalds's instrument was of real practical use, and the brilliant idea of using synchronously rotating discs, now employed in the Hughes printing apparatus, was entirely his own. The only defect in his invention was the comparative slowness with which a succession of symbols could be transmitted'.—*D. N. B.* He at once offered the invention to the Admiralty, and was officially answered that now the French war was over telegraphs of any kind were wholly needless, and that no other than the semaphore then in use would be adopted. The inventor published the above account first in 1823, and then dropped telegraphy for good.
This second edition contains an interesting preface dated *Battle*, Oct. 9, 1871, and written in the inventor's 83rd year and 48 years after the publication of the first edition. There are however only 4 plates, instead of the 8 contained in the original edition.
It is pleasing to remember that an Englishman, DR. WILLIAM GILBERT, wrote the first scientific treatise on electricity in Elizabeth's reign, and another invented the electric telegraph in George the Third's, and another wireless telegraphy (on the Flat Holm in the Bristol Channel) in Queen Victoria's.
- 14421 **RONAYNE** (Philip) TREATISE of ALGEBRA, in two Books, the First treating of the ARITHMETICAL, the Second of the GEOMETRICAL PART; 2nd Edition, with Additions, *numerous diagrams*, 8vo. *old calf*, 8s 6d
1727
This work was unknown to Poggenдорff (who does not even mention the author), Lowndes, and Allibone. Pp. 395-461. treat of the obsolete METHOD of EXHAUSTION, with applications to draw tangents, to find the maxima and minima of curves, and to quadratures, yet the author does not even remotely refer to Newton's Method of Fluxions, or the principles underlying it. The author was doubtless an ancestor of Joseph Philip Ronayne, railway and hydraulic engineer in Ireland and California, and Home Rule M.P., who died in 1876.
- 14422 **RONCA** (Cap. di Fregata G.) MANUALE di BALISTICA ESTERNA; *with tables and diagrams*, 8vo. *sewn*, 4s
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- 14423 ——— MANUALE del TIRO, con un Appendice del PROF. [G.] PESCI sulla 'NOMOGRAFIA'; *with 10 tables and 202 other illustrations*, thick 8vo. *sewn*, 6s (p. L. 10 nett)
ibidem, 1901
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chez l'auteur, 1820
This is probably the only complete work ever written on this interesting subject, and fully discusses the ships of many-banked oars which must have added a horror of their own to the slavery of a cultured Antiquity. There was no copy of the work in the Scott Library, nor is there one in that of the Institution of Naval Architects.
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- 14581 —, **MEMOIR** of, with Notices of his DAUGHTER, by GEORGE EDWARD ELLIS, with portraits and plates on steel and wood and in photography, thick roy. 8vo. cl. (o. p.), 10s 6d

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Containing the author's discovery of caffeine. The work forms the first part (of two published) of 'Neueste phytochemische Entdeckungen zur Begründung einer wissenschaftlichen Phytochemie.'

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- 14584 **RUSCELLI** (Girolamo) **PRECETTI della MILITIA MODERNA**, tanto per Mare quanto per Terra: Trattati da diuersi nobilissimi Ingegneri, e raccolte con molta Diligenza; ne quali si contiene tutta l'ARTE del BOMBARDIERO, e si mostra l'Ordine che ha da tenere il Maestro di Campo, quando vuole accompagnare il suo Essercito, ecc. ecc. ecc.; with numerous curious woodcuts, and the cat-and-mouse device, sm. 4to. sewn (RARE), 15s Venetia, appresso gli Heredi di Marchio Sessa, 1583

'An interesting work with curious woodcuts, one of which exhibits the form of the life-belt.'—*Libri Catalogue*.

- 14585 **RUSSELL** (Edward John) **THE REACTION between PHOSPHORUS and OXYGEN**; Part I, with 7 diagrams, 8vo. (pp. 22), sewn, 1s 6d 1908

- 14586 **RUSSELL** (Hon Francis Albert Rollo, F.R. MET. S.) **On CIRRUS and CIRRO-CUMULUS**, roy. 8vo. (pp. 10), sewn, with author's inser., 1s 6d [1883]

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- 14590 **RUSSELL** (Henry Chamberlaine, F.R.S.) **THE METEORS of JUNE 27th, 1894, and MAY 7th, 1895**, 2 pamphlets 8vo. (pp. 16), sewn, 1s 6d 1894-5

- 14591 **RUSSELL** (John Scott, C.E., F.R.S.) **GEOMETRY in MODERN LIFE: the Substance of two Lectures on Useful Geometry before the Literary Society at Eton, with diagrams**, 8vo. cl., 4s Eton, 1878

These interesting lectures to Eton boys were unknown to the author's biographer in *D. N. B.*

- 14592 — **TREATISE on the STEAM ENGINE**, from the seventh Edition of the *Encyclopædia Britannica*, with 15 folding plates, and 247 woodcuts, cr. 8vo. cl., uncut, 5s Edin., 1841

Mr. Scott Russell's first publication.

Pp. 171-316 contain Steam Navigation, and pp. 316-61 Steam Locomotion. The author constructed the *Great Eastern S.S.*, and designed the *Warrior*, the first sea-going armoured frigate. 'He also constructed some common steam road carriages, which ran successfully for a time between Paisley and Glasgow' (*D. N. B.*).

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- The work was unknown to the author's biographer in D. N. B. There were not many steamships in the Navy in 1852! and those nearly all paddle-boats, with masts and sails, and the multifarious methods of wasting coal here denounced are very curious. Admiral Ryder of course urges working expansively.
- 14613 **SABATIER** (Paul, de l'Institut), et Jean Baptiste SENDERENS; *Institut Catholique, Toulouse*: NOUVELLES MÉTHODES GÉNÉRALES d'HYDROGÉNATION et de DÉDOUBLEMENT MOLÉCULAIRE basées sur l'Emploi des Métaux Divisés, 8vo. sewn (o. p.), 4s 1905
- Containing a description of the author's method of distinguishing primary, secondary, and tertiary alcohols. This M. Paul Sabatier is not the client of St. Francis of Assisi.
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- This work was unknown to the author's biographer in D. N. B. It contains an historical account of observations from Rossel, 1791 to 1836.
- 14621 **SALTER** (Mary) A NEW SYSTEM of GEOLOGY, with Archæological Proofs of the Destruction of the World by Fire and Water, with portrait and 11 other plates (2 folding), cr. 8vo. cl., 3s (p. 10s nett) [1908]

- 14623 **SABINE** (Robert) The ELECTRIC TELEGRAPH, first edition, with 189 woodcuts, 8vo. cl. (SCARCE), 10s 6d 1867

Historically important as the first complete English work on the subject. It is dedicated to Sir William Siemens. The later editions were much condensed.

- 14624 **SAGE** (Balthazar Georges, de l'Institut) L'ART d'ESSAYER l'OR et l'ARGENT; Tableau comparé de la COUPELLATION des Substances métalliques, par le Moyen du PLOMB ou du BISMUTH: Procédés pour obtenir l'Or plus pur que par la voie du Départ; with 4 folding plates on copper, 8vo. old mottled calf extra (loose in cover); rare, 12s Imprimerie de Monsieur, 1780

Sage peut être regardé comme ayant créé la doménasie en France, et c'est là son plus beau titre de gloire. — *Biogr. Gén.* He was the first to mention in this work that ferrocyanide of potassium may be obtained in solid form.

- 14625 — EXAMEN CHYMIQUE de DIFFÉRENTES SUBSTANCES MINÉRALES; ESSAI sur le VIN, les PIERRES, les BÉZOARDS, et d'autres Parties d'Histoire Naturelle et de Chymie; Traduction d'une Lettre de M. LEHMANN, sur la MINE de PLOMB ROUGE, 12mo. old hf. calf, 7s 6d 1769

- 14626 — MÉMOIRES de CHIMIE; with folding plate of chemical symbols, 8vo. hf. bound, 8s Imprimerie Royale, 1773

- 14627 — ANOTHER COPY, old calf (joints cracked), with book-stamp of the HON. HENRY CAVENDISH, F.R.S., on rev. of title, 10s 6d

The author describes in the above work hydrofluoric acid, which he considers a variety of phosphoric acid. He was one of the last French adherents of the Phlogiston Theory.

- 14628 **SAIGEY** (Jacques Frédéric) TRAITÉ de MÉTROLOGIE, ancienne et moderne, suivi d'un Précis de CHRONOLOGIE, et des SIGNES NUMÉRIQUES; with 3 copperplates (one folding), 12mo. hf. cl., 3s 6d L. Hachette, 1834

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- 14630 **SAIL-MAKING**, The ART of, as practised in the ROYAL NAVY, and according to the most approved Methods in the Merchant Service, with the PARLIAMENTARY REGULATIONS relative to SAILS and SAIL CLOTH, with etched front. of a sail-loft with its tackle, and numerous woodcuts of all the sails, and elaborate tables of dimensions. 8vo. boards, uncut (rare), 12s 6d David Steel, 1796

Very interesting as showing the elaborate art and science which went to give motive power to the old man-of-war, and made possible the manœuvres which gave England victory after victory.

There was no copy of this edition in the Scott Library, which contained only those of 1821 and 1843, nor is there a copy of any edition in the Library of the Institution of Naval Architects.

At end is a 4-p. Catalogue of Charts, Pilots, and Navigation Books, sold by Heather and Williams.

- 14631 **ST. LEGER** (Mathew) ESSAY on the IMPROVEMENT of the ART of NAVIGATION; or a NEW INVENTED METHOD for FINDING the LONGITUDE at SEA MECHANICALLY, by the Help of a Simple Theorem founded in true Principles of Spherical Geometry, with frontispiece, 12mo. (pp. 64), sewn (rare), 7s 6d Dublin, printed for the author, 1776

This work, which begins with a quotation from the Bible and ends with a receipt signed by the author, was unknown to Watt, Allibone, and Lowndes. Pp. 49-63 contain 'An Absolute Time-Keeper for finding the Longitude by Celestial [sic] Observations.'

- 14632 **SAINT-LÉON** (—, chef de gare du Chemin de Fer de Paris à Rouen) MANUEL PRATIQUE des CHEMINS DE FER, à l'Usage des Voyageurs, des Industriels, des Administrations spéciales, des Practiciens, des Employés, et des Personnes qui se destinent à des Emplois actifs dans les nouvelles Compagnies; with folding plate of carriage and signal lamps, 12mo. sewn (scarce), 7s 6d 1845

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François l'Anglois, dit Chartres, 1645

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- 14637 — ANOTHER COPY, old calf (engraved title and Plates 37 and 69 wanting, and some others slightly soiled), 10s

This edition contains a number of Tables, and 5 new Propositions.

- 14638 — NOUVELLE [CINQUIÈME ET DERNIÈRE] ÉDITION; with engraved title, and 72 copperplates, 12mo. old calf, 15s A. Dezallier, 1701

- 14639 — ANOTHER COPY, old calf gilt (wanting engraved title and part of printed title, otherwise a sound copy), 8s 6d

Unknown to Poggenorff, Graesse, Brunet, etc., while Quérard only knows the editions of 1645, 1665, and 1701. It is no. 11,453 in Honzeau-Lancaster.

- 14640 **SALVERTE** (Anne Joseph Eusèbe Baconnière) The PHILOSOPHY of MAGIC, PRODIGES, and APPARENT MIRACLES, translated, with Notes illustrative, explanatory, and critical, by ANTHONY TODD THOMSON, M.D. [and Biographical Sketch by FRANÇOIS ARAGO], 2 vols. 8vo. in 1, cl. (o.p.), 10s 6d (p. £1. 4s) 1846

L'auteur prétend y expliquer par la physique et la chimie tous les actes attribués par les religions anciennes et modernes à une intervention surnaturelle. — *Biographie Générale.* He would find himself in a strangely inverted world in unte Sæculo Vigesimo, when all the prodigies are swallowed whole and only Religion is disbelieve.

- 14642 **SAKURAI (Joji)** [*Prof. Chemistry, Univ. Tokyo*], COLLECTION of PAPERS, contributed on the Occasion of the JUBILEE CELEBRATION of [with Biographical Sketch by NAOICHI MATSUI], with portrait, 3 plates, and numerous other illustrations, 4to. sewn, 7s 6d Tokyo, 1908
Consisting of 13 original contributions, including: On the Viscosity of Dilute Alcoholic Solutions, by T. HIRATA: Ueber die Anomalie der starken einwertigen Elektrolyte, von M. KATAYAMA: Studies on the Chemical Theory of Solutions, Part I, by K. IKEDA.
- 14643 **SALADIN (E.)**, et **Georges CHARPY**: La SITUATION de la GROSSE MÉTALLURGIE en FRANCE, 4to. (pp 41), sewn, 2s [1906]
- 14644 **SALMON (George, pr.; F.R.S., Provost T. C. D.)** LESSONS INTRODUCTORY to the MODERN HIGHER ALGEBRA, 8vo. hf. morocco gilt, 8s Dublin, 1859
Bound up with the above is Dr. Salmon's Treatise on Conic Sections, 3rd Edition, '55.
- 14645 ——— FOURTH [LAST] EDITION [enlarged and rewritten], 8vo. cl. (VERY SCARCE), £1. 10s *ibidem*, 1885

'The investigations of Cayley and Sylvester [to whom the work is dedicated] into the invariants of quantities were beginning to attract attention; and Salmon proceeded to apply their results to geometrical theory, the result being *Lessons Introductory to the Modern Higher Algebra*, in which he incorporated much original matter.'—*Bp. Bernard*.

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- 14646 ——— TREATISE on the ANALYTIC GEOMETRY of THREE DIMENSIONS, 2nd Edition [enlarged], 8vo. cl., uncut (worn), with auto. and pencillings of *Prof. Lloyd Tanner*, F.R.S., 6s *ib.*, 1865
- 14647 ——— THIRD EDITION [greatly enlarged], thick 8vo. cl. (cover worn), 10s *ib.*, 1874
This edition contains a new chapter: 'Properties of Quadrics in General'.
- 14648 ——— FOURTH EDITION [enlarged and rewritten], thick 8vo. cl., 15s *ib.*, 1882
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- 14649 ——— TREATISE on CONIC SECTIONS, with Account of some of the most important Modern Algebraic and Geometric Methods, second Edition, revised and enlarged, diagrams, 8vo., cl., 2s 6d *ib.*, 1850

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The always striking fellowship of theology and mathematics has seldom had a greater example than in Dr. Salmon, and the weight it lent him was a source of strength to the Irish Church throughout the throes of disestablishment and reconstruction.

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THE ENGRAVER'S DOOM:

- 14658 **SAMPSON (Thomas)** ELECTROTINT, or the ART of making PAINTINGS in such a Manner that Copper Plates and 'Blocks' can be taken from them by Means of Voltaic Electricity, with 3 plates, 8vo. (pp. 38), sewn (scarce), 8s 6d 1842
- 14659 ——— A LARGE PAPER COPY, roy. 8vo. cl., 10s

This is the public announcement of the doom of the engraver on copper, steel, and wood, though the sentence was not executed for many years afterwards. It contains a copy of the Patent Specification (dated June 12th, 1841) of EDWARD PALMER, for 'Improvements in producing PRINTING SURFACES, and in printing China, Pottery Ware, Music, Maps, and PORTRAITS,' being the invention of glyptography (a process for producing woodcut-like plates by electrolyte), of which Sampson's account gives a description. From it sprang in time the whole fell tribe of Process Blocks, which have starved out a beautiful art, and made each new and pushful publisher a terror to the tasteful.

- 14660 **SAN GIOVANNI (Antonio, Nobile Vicentino)** SECONDA SQUADRA MOBILE, et ARITMETICA, nella quale s'insegna il Maneggio de Numeri Intieri, e Rotti con tutte le Regole dependenti per sbrigare ogni Negotio, misurar Terreni et Fabriche in tutte le Maniere; e meterli in Dissegno; misurar Corpi Cubi, et ogni Cosa Terrena, ecc., con Aggiunta d'un breve Trattato d'Agricoltura; with large woodcut of the Squadra, and numerous diagrams, sm. 4to. boards (fine copy); RARE, 15s Vicenza, 1686

'Raro. . . . L'autore intende per squadra mobile un circolo graduato con alidade, cui va unita la bussola.'—*Riccardi*.

This work was unknown to Professor de Morgan.

- STO. VINCENTIO (Gregorius a, S.J.)** OPUS GEOMETRICUM (1647)—v. GREGORIUS, No. 8652, ante.

- 14661 **SANDEMAN (Archibald)** TREATISE on the MOTION of a SINGLE PARTICLE, and of Two Particles acting on oneanother, with diagrams, 8vo. hf. cl., 3s Cambridge, 1850

- 14663 **SAMUDA** (Joseph d'Aguilar, M.P., M.I.C.E.) TREATISE ON THE ADAPTATION OF ATMOSPHERIC PRESSURE to the Purposes of LOCOMOTION ON RAILWAYS, with 2 folding plates, and 2 woodcuts, 8vo. (pp. 50), *sewn* (SCARCE), 12s 6d 1841

The author, the pioneer iron shipbuilder of the Isle of Dogs, was with Samuel Clegg the elder the first to utilize George Medhurst's suggestion to obtain locomotive power by differential atmospheric pressure, by constructing an exhaust railway between London and Wornwood Scrubbs in 1840. The impossibility of maintaining a working vacuum however produced an enormous coal bill, and the scheme came to an end, as mentioned in the next article. It had one final modified trial in the system of the Pneumatic Dispatch Co., but their tube too has long been derelict, and the new Post Office Railway is to have electric draught.

- 14664 ——— RAILWAYS ATMOSPHÉRIQUES, ou Application de la Pression Atmosphérique à la Traction sur les Railways, traduit et annoté par C. DU PERRON; with 3 folding plates, 8vo. (pp. 62), *limp smooth maroon morocco gilt, t. e. g. (fine copy); scarce*, 10s 1842

The 'Atmospheric Railway' actually worked the St. Germain incline till 1860, the only instance of its practical employment after its costly collapse on the South Devon Railway.

- 14665 **SANDS** (Benjamin W.) The PRIMORDIAL ENERGY, with 2 plates (including 'ozone image'), roy. 8vo. (pp. 18), *sewn*, 3s 6d Springfield, Mo., 1906

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'Rare.'—Riccardi. 'The author maintains against Aristotle that comets are produced in the heavens by the sun. The work was unknown to Nelli.'—*Libri Catalogue*.

- SARASA** (Alfonso Antonius de, S.J.) SOLUTIO PROBLEMATIS (1649)—v. GREGORIUS, No. 8652, ante.

- 14669 **SATLER** (Wolfgang, Basel) ΔΙΑΝΟΙΑ ΑΣΤΡΟΛΟΓΙΚΑ, quæ omnium Prædictionum astrologiarum veras Causas inquirat, falsas vero examinat et damnat; nulli non perutilissima. Coronidis Loco defenditur Aristoteles contra Neotericos plosque, qui de Apparentia Stellarum prîoribus Annis modò deprehensarum scripserunt, accessit tandem et succincta EXEGESIS ΑΣΤΡΟΛΟΓΙΚΑ, Definitionum et Divisionum Astrologiarum verum Sistema; with folding table, 16mo. old hf. vellum (a number of ll. browned), 12s 6d Montisbelgard, J. Foillet, 1605

Rare, and unknown to Poggendorff and other bibliographers.

- SAUNDERSON** (Nicholas, F.R.S., *Lucasian Prof. Mathematicis*) COMMENTARIUS IN PRINCIPIA PHILOSOPHIÆ NEWTONIANÆ, a Manuscript—v. NEWTONIANA, No. 12624 ante.

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'Herrn Eduard Solly [F.R.S.] vom Verfasser—Berlin d. 13ten Januar 1828.'—Inscr. on flyleaf.
The author investigates in the above paper the vibrations of the magnetic needle in the mariner's compass, and suggests replacing the iron bowl by a nickle-copper alloy to damp the vibrations by exciting currents of induced electricity.

- 14797 [SECONDA (Jean Baptiste Baron de)] MEMOIRE sur l'ELECTRICITÉ; *with vignette on title*. 12mo. boards (rare), 10s 6d 1746
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There is no copy of this work in the Ronalds Library.
- 14798 SEDGWICK (Adam, *pr.*, F.R.S., *Woodwardian Prof.*, *Cantab.*) DISCOURSE on the STUDIES of the UNIVERSITY of CAMBRIDGE; 5th [last] Edition, with Additions, and Preliminary Dissertation (pp. 442), thick post 8vo. *cl.*, 6s 1850
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The Nine Books of Paracelsus and the Chemical Dictionary have a separate titlepage and pagination.

- 14815 [—] **NOVUM LUMEN CHYMICUM**, e Natura, Fonte, et manuali Experientia depromptum: cui accessit TRACTATUS de SULPHURE, Authoris Anagramma, Divi Leschi Genus Amo, 18mo. cl. (*rare*), £1. 1s *Geneva*, 1639

Bound up with the above is: JOANNIS AURELII AUGURELLI P. Ariminensis Chrysopceia et Vellus Aureum, quorum illa emendatissima prodit: hoc verò nunc primum ex veteri MSO. sub typis venit' (pp. 84).

- 14816 [—] **NOVUM LUMEN CHYMICUM**, Novo Lumine auctum, sive ZWÖLFF GEHEIME CHYMISCHE TAFELN und BEISCHIFFTEN über die XII. Tractate SENDIVOGI, nebenst beygehenden kurtzen COMMENTARIO und angefügter Schluss Rede ORTHELII; *with woodcuts*, 12mo. *old vellum (back damaged); RARE, £1. 1s* *Frankfurt*, 1682

According to Mr. A. E. Waite the *Novum Lumen Chymicum* was not the work of Sendivogius, although published as his own, but that of ALEXANDER SETHON, his teacher.

- 14817 **SENEBIER (Jean)** RECHERCHES sur l'INFLUENCE de la LUMIÈRE SOLAIRE pour MÉTAMORPHOSER l'AIR FIXE en AIR PUR par la Végétation, avec des Expériences et des Considérations propres à faire connoître la Nature des Substances Aériformes, 8vo. *hf. calf (SCARCE)*, 12s 6d *Genève*, 1783

The author confirmed the discoveries of Ingenhousz (v. Nos. 9665-6), and discovered the fact that chlorophyll is bleached by the action of light in a few minutes. He also made important investigations on the action of light on resins and essential oils.

- 14818 **SENEFELDER (Alois)** COMPLETE COURSE of LITHOGRAPHY: containing clear and explicit Instructions in all the different Branches and Manners of that Art: with a HISTORY of LITHOGRAPHY from its Origin to the present Time, and a Preface by FREDERIC V. SCHLICHTEGROLL, translated by A. S., *with portrait, and 13 plates of lithographic specimens*, 4to. *hf. calf (binding damaged); SCARCE, £2. 2s* *R. Ackermann*, 1819

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- 14819 **SENNERT (Daniell, Prof. Medicine, Univ. Wittenberg)** PHYSICA HYPOMNEMATA. I. De Rerum Naturalium Principiis. II. De Occultis Qualitatibus. III. De Atomis et Mistione. IV. De Generatione Viventium. V. De Spontaneo Viventium Ortu, cum Indicibus necessariis, 8vo. *old vellum (sound copy); RARE, £1. 1s* *Lugduni*, 1637

'C'est dans ce recueil que Sennert donna carrière à sa vaine paradoxale. D'après lui, l'âme était dans la semence avant l'organisation, et c'est elle qui formait les corps; les métaux devaient leur création à des esprits intelligents, et l'âme des bêtes n'était point matérielle.' —*Biogr. Gén.*

The work is nevertheless scientifically important for the contributions to the atomic theory which it contains. The author accepts physical, as distinct from mathematical, minima as the smallest no longer physically perceptible parts of a body, and attacks in this connexion the doctrines of Aristotle. His atomistic theory found many followers, among others Otto von Guericke and Johannes Sperling.

- 14820 **SERLE (George)** DIALLING UNIVERSAL, shewing by an easie and speedy Way, how to describe the Hore-lines upon all Sorts of Plains in any Latitude whatsoever: Performed by certain SCALES set upon a small portable RULER; 2nd Edition furnished with these Varieties. I. Reflex Dialling. II. To finde the necessary Requisites belonging to all Plains. III. Severall Tables ready calculated, with an Appendix: Shewing the USE of the SCALES in resolving of the most useful Questions appertaining to Astronomie, Navigation and Geographie, *with numerous diagrams*, sm. 4to. *fine and large copy (but slightly wormed) in contemporary English calf (RARE)*, £1. 5s *W. Leybourn, for Thomas Pierrepont*, 1664

- 14821 **SERRET (Joseph Alfred, de la Sorbonne; de l'Institut)** COURS d'ALGÈBRE SUPÉRIEURE, 2^e Édition, augmentée; *with folding plate*, 8vo. (pp. 600), *sewn*, 2s *1854*

- 14822 [—] TROISIÈME ÉDITION [refondue et augmentée]; *with diagrams*, 2 vols. 8vo. *sewn*, 4s 6d (p. F. 24 nett) *1866*

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- 14825 [—] **TRAITÉ de TRIGONOMÉTRIE**, 5^e Édition; *with diagrams*: **Laurent (Hermann)** TRAITÉ du CALCUL des PROBABILITÉS, 2 vols. 8vo. in 1, *hf. calf gilt*, 12s *1875-3*

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Laurent's work is out of print and scarce, and includes a 'Liste des principaux Ouvrages ou Mémoires publiés sur le Calcul des Probabilités' (pp. 14).

- 14826 **SEXTON (Alexander Humbolt, F.I.C.)** PRODUCER GAS: a Sketch of the PROPERTIES, MANUFACTURE, and USES of GASEOUS FUEL, *with 32 woodcuts*, 8vo. cl., 5s (p. 10s nett) *Manchester* [1903]

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Chiefly interesting for the fact that it was still considered necessary at so late a date to write a defence of the Copernican System. The author was a friend of Samuel Pepys, and took part in the campaign against the Duke of Monmouth as an officer of artillery at the battle of Sedgemoor.

14829 **SETTELE** (Giuseppe, *Canonico; Univ. Rome*) BREVE ESPOSIZIONE della TEORIA del Sig. HAÛY sulla STRUTTURA dei CRISTALLI; *with folding plate, 4to.* (pp. 37), *sewn, 3s 6d* Roma, 1805
Unknown to Pogendorff.

14830 — ELEMENTI di OTTICA e di ASTRONOMIA; *with 20 folding plates, 2 vols.* 8vo. *hf. parchment gilt (scarce), 12s* 1818-19

This work is of importance in connexion with the attitude of the Roman Catholic Church towards the Copernican System. It was the first orthodox work based on it, and therefore immediately objected to by the Papal Censor, who expected the author to treat the system as an hypothesis devoid of proof. The author refused and appealed to Pope Pius IX., who finally decreed that the Copernican system might thenceforward be taught without hindrance.

14831 — MEMORIA sopra la FORMA delle LINEE ORARIE, indicanti le Ore inequali degli Antichi sopra gli OROLOGJ SOLARI; *with frontispiece, folding plate, and vignette, 8vo.* (pp. 44), *sewn, 5s* ib., 1816

14832 **SEWALL** (Charles Henry) WIRELESS TELEGRAPHY: its Origin, Development, Inventions, and Apparatus, *with 5 plates, and 77 illustrations, 8vo. cl. (o. p.), 4s 6d* (p. 10s 6d nett) 1903

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Consisting of 129 numbered ll., signatures a—p in fours, and q in 5, the last being blank. At end is a 4-page Italian Arithmetical MS.

All editions of this work are very rare, especially the first. Prof. de Morgan, who owned an imperfect copy of an edition which he was on this account unable to describe, states: 'I can find no mention of Sfortunati in catalogues.'

'Questa prima edizione è rarissima . . . Le Sfortunati, il cui nome figura nella famosa questione fra Cardano e Tartaglia, viene meritamente noverato tra i migliori autori aritmetici del principio del secolo XVI.'—Riccardi.

14834 **SHAFFNER** (Col. Taliaferro P., *Secretary, American Telegraph Confederation, New York*) TELEGRAPH COMPANION, devoted to the Science and Art of the MORSE AMERICAN TELEGRAPH, Vols. 1-2 (all pub.; January 1854—October 1855), *with steel portraits of Morse and the editor, and numerous woodcuts, 2 vols. 8vo. in 1, cl. gilt, g. e., with editor's inser. (SCARCE), £1. 1s* New York, 1854-5

Very interesting for the account of patent litigation in the United States in the infancy of electric telegraphy. There is an interesting chapter (Vol. II pp. 6-96): The Electro-Magnetic Telegraph: a Defence against the Injurious Deductions drawn from the Deposition of Prof. Joseph Henry, with Critical Review, and Examination of Prof. Henry's Alleged Discoveries, bearing on the Electro-Magnetic Telegraph, by Samuel F. B. Morse; with Prof. Henry's Deposition (pp. 97-112).

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There is no copy of this work in the Library of the Institution of Naval Architects, while the Scott Library only contained the edition of 1822.

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- 15064** ——— (— and Thomas) REPLY to SIR DAVID BREWSTER'S MEMORIAL to the Lords Commissioners of Her Majesty's Treasury, on the NEW SYSTEM of DIOPTRIC LIGHTS, 8vo. (pp. 23), *sewn, 3s 6d ib.*, 1859
- 15065** ——— ANOTHER COPY, with the Appendix (pp. 12), 2 vols. 8vo. *sewn, 5s ib.*, 1859-60
An answer to 'gross misrepresentations made by Sir David Brewster, and to his alleged claim of being the inventor of the polygonal lens, and its application to lighthouses.'

- 15067 **STEVENSON** (Robert, F.R.S.E.; *father of Alan, David, and Thomas Stevenson, and grandfather of R. L. S.*) ACCOUNT of the BELL ROCK LIGHT-HOUSE, including the Details of the Erection and Peculiar Structure of that Edifice; with a [*sic*] Historical View of the Institution and Progress of the Northern Light-Houses, with fine frontispiece after TURNER (on India paper), and 21 copperplates, roy. 4to. *hf. roan, uncut, with visiting card of George Rennie, F.R.S., and presentation inser. to him from the Commissioners of the Northern Light-Houses* (SCARCE), £1. 5s (p. £5. 5s)
Edin., 1824

'The most important of his light-houses was the famous Bell Rock tower, erected on a dangerous cliff submerged by every tide to the depth of twelve feet. . . . Previous attempts [after the Abbot of Aberbrothock's bell had been sunk by Ralph the Rover] made by Capt. Brodie to erect beacons upon it had failed. . . . The tower rises to a height of 100 ft.; the diameter of the base is 42 ft., diminishing to 15 ft. at the top. . . . The cubic contents of the tower are more than double those of the Eddystone, from which it differs in many respects owing to its far more difficult and dangerous site. . . . The optical apparatus consisted of parabolic reflectors of silvered copper, combined with argand burners, arranged on a four-sided frame, the best and most complete apparatus then known; and, as a means of further distinguishing the light, it showed red and white alternately, hence Sir Walter Scott's 'ruddy gem of changeful light'.'—D. N. B.

- 15068 ——— OBSERVATIONS on the ALVEUS or General Bed of the GERMAN OCEAN and BRITISH CHANNEL, 4to. (pp. 7), *unbound, with author's inser., and addressed, to George Rennie, F.R.S.*, [1816]
4s

'His 'Alveus of the German Ocean' is frequently quoted by geologists.'—D. N. B.

- 15069 ——— REPORT relative to a Line of CANAL on ONE LEVEL between the Cities of EDINBURGH and GLASGOW, to form a Junction with the Forth and Clyde Canal at Lock No. 20, and also with the Port of Leith, and the Broomielaw at Glasgow, with folding map, 4to. (pp. 36), *sewn*, 4s
Edin., 1817

- 15070 ——— ROADS and HIGHWAYS: communicated to the Editor of the Edinburgh Encyclopædia, with plate, 4to. (pp. 12), *sewn*, 3s 6d
ibidem, 1824

'He proposed to use stone tracks as a 'smooth and durable city road'.'—D. Stevenson.

- 15071 ———: STEVENSON (David, F.R.S.E.) LIFE of ROBERT STEVENSON, with bust portrait, 12 plates, and 20 woodcuts, 4to. *cl.*, 6s (p. £1. 1s)
ib., 1878

- 15072 ———: MEMORIAL of the COMMISSIONERS appointed by Act of Parliament for ERECTING LIGHTHOUSES in the NORTHERN PARTS of GT. BRITAIN, relative to the Erection of a Lighthouse on the [INCH] CAPE or BELL ROCK, 8vo. (pp. 57), *sewn*, 3s 6d
ib., 1806

- 15073 **STEVENSON** (Thomas, M.I.C.E., F.R.S.E.; *father of Robert Louis Stevenson*) THE DESIGN and CONSTRUCTION of HARBOURS, with 10 plates and 32 woodcuts, 8vo. *cl.*, with author's inser., 4s
Edin., 1864

- 15074 ——— ANOTHER COPY; with: CALVER (Edward Killwick, R.N.) THE CONSERVATION and IMPROVEMENT of TIDAL RIVERS, considered principally with Reference to their Tidal and Fluvial Powers, with 28 woodcuts and coloured folding plan—2 vols. 8vo. in 1, *hf. calf (rubbed)*, 7s 6d
ibidem, 1864—London, 1853

A reprint, with many additions, of the article 'Harbours' in the eighth edition of the Encyclopædia Britannica.

- 15075 ——— LIGHTHOUSE ILLUMINATION: a Description of the HOLOPHOTAL SYSTEM, and of Azimuthal-Condensing, and Apparent Lights, with other Improvements, with 4 plates, and 53 woodcuts, 8vo. boards, with author's inser., 7s 6d
1859

'His crowning invention was his 'azimuthal condensing system of lighthouse illumination.' No attempt had previously been made to allocate the auxiliary light in proportion to the varying lengths of the different ranges and the amplitudes of the arcs to be illuminated, or, where a light had to show all round the horizon, to weaken its intensity in one arc, and with the rays so abstracted to strengthen some other arc, which from its range being longer required to be of greater power.'—D. N. B.

A possible hindrance to German success in world-domination may exist in a certain limitation in the national mentality, which while allowing to the Stateboud scientist much success in poisoning and other arts of destruction, has not tended to the development in one family of such brilliant gifts in the arts of peace and the realm of the imagination as those with which mankind was endowed in eighty years from Robert to Robert Louis Stevenson.

- 15076 **STEVINUS** (Simon, de Bruges) ŒUVRES MATHÉMATIQUES, où sont insérées les MÉMOIRES MATHÉMATIQUES; le tout reven, corrigé, et augmenté par ALBERT GIRARD; with numerous woodcuts and diagrams, large folio, contemporary white vellum (RARE), £2. 10s
Leyde, B. et A. Elsevier, 1634

The most complete edition of the author's works, containing: Arithmétique; Algèbre de Diophante d'Alexandrie; Pratique d'Arithmétique, contenant les Tables d'Interest, la Disme, et un Traicté des Incommensurables Grands; Cosmographie (Doctrine des Triangles, Géographie, Astronomie); Pratique de Géométrie; Art Ponderaire ou Statique; Optique; Castramétation; Fortification par Esculuses; Fortification.

'Il a employé dans ces recherches des artifices mathématiques qu'on peut considérer comme un premier achèvement vers le calcul infinitésimal, et donné un des meilleurs traités de navigation, qui a servi de texte dans toutes les écoles chez les nations maritimes.'—Van de Weyer.

- 15077 ——— HYPOMNEMATA MATHEMATICA, à Belgico in Latinum à WIL[LEBRORDO] SN[ELLIO] conversa; with woodcuts and numerous diagrams, 3 vols. folio in 1, old limp white vellum (SOUND COPY); RARE, £2. 2s
ib., J. Patius, 1608

The first collected edition of the author's works, including: Doctrinae Triangulorum de Sinuum Canonibus Fabricandis; de Triangulis Planis; de Sphaericis Triangulis; Libri VI Geographiae (Canones Loxodromici, de Histiodromia, de Theoria Maritimorum Aestuum, etc.); de Caeli Motu.

- 15078 ——— PROBLEMATUM GEOMETRICORUM Libri V, editio princeps, with vignette on title and numerous diagrams, 4to. old half binding (somewhat waterstained); extremely rare, £2. 10s
Antverpia, Joa. Bellersius [1583]

This work, which had never been reprinted, was unknown to Poggendorff, Brunet, and other bibliographers.

Prof. M. Cantor (*Vorlesungen üb. Gesch. d. Math.*, Bd. II p. 528), who mentions 'die bei der an Unauflindbarkeit grenzenden Seltenheit' of the original editions, was also unable to see the above work. A description of it is given by M. Steichen (v. No. 15083 *infra*), who complains that 'il est déplorable de voir l'histoire des sciences rester muette encore une fois sur ce beau travail.'

- 15079 ———: STEICHEN (Michel) MÉMOIRE sur la VIE et les TRAVAUX de SIMON STÉVIN; with 5 folding plates, 8vo. boards (back damaged), 5s
Bruxelles, 1846

- 15081 **STEVINUS** (Simon, de Bruges) ARITHMETIQUE, reveuë corrigee et augmentee de plusieurs Traitez et Annotations par ALBERT GIRARD; with fine engraved title and diagrams, thick 8vo. contemporary white vellum (somewhat browned, but a FINE COPY); very rare, £2. 15s

Leide, de l'Imprimerie des Elzeviers, 1625

This edition contains the author's Arithmétique théorique, first published in 1585, his 'Arithmétique pratique', and 'Les Six Premiers Livres d'Algèbre de Diophante d'Alexandrie, dont les quatre premiers sont traduits et expliqués par Simon Stevin, et les deux derniers par Albert Girard.'

In it appeared first 'La Pratique d'Arithmétique' (pp. 695-822), La Disme, enseignant facilement expédier par nombres entiers sans rompus, tous comptes se rencontrans aux affaires des Hommes' (pp. 823-49), and 'Traicté des Incommensurables Grands, avec Appendice de l'explication du 10^e livre d'Euclide' (pp. 850-85).

'La Disme' contains, according to Prof. de Morgan, 'the first announcement of the use of decimal fractions.'

He introduced in his Arithmetic exponents to mark the power to which quantities were raised. . . . He further suggested the use of fractional (but not negative) exponents, and a decimal system of weights and measures. His geometry is ingenious. . . . Some theorems on perspective are enumerated.—W. W. R. Ball.

- 15082 — De BEGHINSELEN der WEEGHCONST: De WEEGHDAET: De BEGHINSELEN des WATERWICHTS; all first editions, with vignette on titles, and numerous woodcuts and diagrams, 3 vols. sm. 4to. in 1, old white vellum (first title slightly soiled, and a few slight water-stains, otherwise FINE COPIES); excessively rare, £7. 15s

ibidem, CHRISTOFFEL PLANTIJN, 1586

- 15083 — THE SAME, 3 vols. in 1, hf. citron calf, as good as new (neat library stamp on third title, otherwise remarkably fine and exceptionally tall copies), £9. 9s

It is however on his *Statics* and *Hydrostatics*, published (in Flemish) at Leyden in 1586, that his fame rests. In these works he enunciates the triangle of forces—a theorem which some think was first propounded by Leonardo da Vinci. Stevinus regards this as the fundamental proposition of the subject. Previous to the publication of his work the science of statics had rested on the theory of the lever, but subsequently it became usual to commence by proving the possibility of representing forces by straight lines, and thus reducing many theorems to geometrical propositions, and in particular to obtaining in this way a proof of the parallelogram (which is equivalent to the triangle) of forces. . . . Stevinus also found the force which must be exerted along the line of greatest slope to support a given weight on an inclined plane—a problem the solution of which had been long in dispute. He further distinguishes between stable and unstable equilibrium. In hydrostatics he discusses the question of the pressure which a fluid can exercise, and explains the so-called hydrostatic paradox.—W. W. R. Ball.

A full account of this classic of statics will be found in Prof. E. Mach's 'Science of Mechanics.' The above original editions are excessively rare, the work being generally quoted by historians of mathematics from the Latin translation in the reprint in *Hypomnemata Mathematica*.

- 15084 **STIFEL** (Michael) ARITHMETICA INTEGRÆ, cum Præfatione PHILIPPI MELANCHTHONIS, editio princeps; with numerous diagrams, thick sm. 4to. old calf (back of binding damaged, title mounted, and a few wormholes in blank margin, nevertheless a SOUND COPY); very rare, £5. 5s

Norimbergæ, apud Johan. Petreum, 1544

The first two books deal with surds and incommensurables, and are Euclidean in form. The third is on algebra, and is noticeable for having called general attention to the German practice of using the signs + and - to denote addition and subtraction. . . . It used to be said that Stifel was the real inventor of logarithms, but it is now certain that this opinion was due to a misapprehension of a passage in which he compares geometrical and arithmetical progressions. Stifel is said to have indicated a formula for writing down the coefficients of the various terms in the expansion of $(1+x)^n$ if those in the expansion of $(1+x)^{n-1}$ were known.—W. W. R. Ball.

- 15085 **STILLMANN** (Thomas Bliss) ENGINEERING CHEMISTRY: a Manual of QUANTITATIVE CHEMICAL ANALYSIS for the Use of Students, Chemists, and Engineers, 3rd Edition [enlarged], with 139 illustrations, 8vo. cl., 9s (p. 19s nett)

Easton, Pa., 1905

- 15086 **STIRLING** (James, F.R.S.) LINEÆ TERTII ORDINIS NEUTONIANÆ, sive Illustratio Tractatus D. NEUTONI de Enumeratione Linearum Tertii Ordinis, cui subjungitur, Solutio trium Problematum; with numerous diagrams, and view of Sheldonian Theatre on title, 8vo. old calf (joints cracked), with auto. of Michael Fryer (VERY RARE), £1. 5s

Oxonie, 1717

It supplied four additional varieties to Newton's seventy-two forms of the cubic curve.—D. N. B. The work forms a necessary supplement to Newton's *Enumeratio Linearum III. Ordinis* (v. Nos. 12572-3 ante). It contains a long list of subscribers, including Sir Isaac Newton. A note by Michael Fryer (1806) on the flyleaf states: 'Extremely rare—cost me £1. 1s. M. F.'

- 15087 — METHODUS DIFFERENTIALIS: sive Tractatus de SUMMATIONE et INTERPOLATIONE SERIERUM INFINITARUM, editio princeps; with diagrams, 4to. large and sound copy in contemporary calf gilt (name cut off title); very rare, £2.

Londini, 1730

- 15088 — ANOTHER COPY, contemporary calf, with bookplate of, and MS. notes by, Philip 2nd Earl Stanhope, F.R.S. (fine copy), £2. 2s

- 15089 — EDITIO SECUNDA; with diagrams, 4to. hf. calf (joints cracked), with bookplates of [SIR] GEORGE PRETYMAN [TOMLINE], Bp. of Winchester, William Pitt's tutor and biographer, and Prof. Lloyd Tanner, F.R.S. (RARE), £1. 10s

ibidem, 1764

- 15090 — The DIFFERENTIAL METHOD: or a Treatise concerning Summation and Interpolation of Infinite Series, translated, with the Author's Approbation, by FRANCIS HOLLIDAY, with diagrams, 1749: The TWO BOOKS of APOLLONIUS PERGEUS, concerning TANGENCIES, as they have been restored by Franciscus Vieta and Marinus Ghetaldus, with a Supplement by JOHN LAWSON, pr., with 6 plates, Cambridge, '64—2 vols. 4to. in 1, hf. bound (first title mounted), with autos. of Michael Fryer and Samuel Roberts, F.R.S., and MS. notes by the former (VERY RARE), £1. 15s

1749-64

This work is of importance in the history of the differential calculus, as having been the first to give the proof of what is known as 'Maclaurin's theorem' (v. Nos. 9761-3 ante); but, save for Montucla, who gives a full account in his *Histoire des mathématiques*, v. III, pp. 223-7, and Cantor (*Vorlesungen üb. Gesch. d. Mathematik*, Bd. III pp. 625-30), the work is curiously enough almost unnoticed in modern histories of mathematics.

'La première partie de cet ouvrage a pour objet la sommation des suites dans lesquelles chaque terme est formé du précédent, multiplié par une fonction rationnelle de son rang. Un grand nombre des résultats sont fort intéressants. . . . Ses recherches présentent quelque utilité dans certaines questions spéciales dépendant du calcul des probabilités.'—M. Marie.

- 15091 **STREETER** (Edwin William; jeweller) GOLD: Legal Regulations for the Standard of Gold and Silver Wares in different Countries of the World, translated and abridged from the Work of A. v. STUDNITZ by MRS. BREWER, with Notes and Additions; 6th Edition, enlarged, with 2 coloured plates, and map, post 8vo. cl. (scarce), 8s

1878

- 15093 **STOCKMAN** (Bernardus, *certyts Fransoyische Schoolmr. tot Dordrecht*) ARITHMETICA, met Tafelken om te rebatteren, door ABEL W. WASSENAER, van nieuw oversien, gecorrigeert en verbeteret; *engraved title with portrait*, 12mo. old vellum (rare), 12s 6d Amsterdam, 1648

This work was unknown to Prof. de Morgan, Poggendorff, and other bibliographers. It contains much on commercial arithmetic.

- 15094 **STÖFFLER** (Johann; *Univ. Tübingen*) CALENDARIUM ROMANUM MAGNUM [in fine: ABACUS REGIONUM, Principatuum, Ducatum, Satrapiarum, Marchiarum Comitatum, Prouinciarum, Insularum, Peninsularum, et Oppidorum nobiliorum, aut cognobiliorum per tota ferme Europam; *title surrounded by woodcut border of arms, and numerous fine woodcut initials; the second part printed in red and black, with beautiful woodcut vignettes representing the seasons, fortified towns, etc.* [col.: *Oppenheim per Jacobum Köbel*, 1518: RUDIMENTA MATHEMATICA, hæc in duos digeruntur Libros, quorum prior GEOMETRIÆ tradit Principia seu Prima Elementa, unam cum Rerum et uariarum Figurarum Dimensionibus. Posterior uero omnigenum HOROLOGIORUM docet DELINEATIONES, autem Sebastianum Munstero; *with folding plate, and numerous large and fine woodcuts and diagrams* [col.: *Basileæ in officina Henrici Petri*, 1551—2 vols. folio in 1, old calf gilt, *with arms on sides (binding rubbed and back damaged, but SOUND AND TALL COPIES)*; very rare, £7. 7s 1518-51

The above edition of the first work is according to Houzeau and Lancaster (*Bibliographie de l'Astronomie*) 'fort rare. Ouvrage remarquable comme exécution typographique, imprimé en rouge et noir, orné dans toute son étendue de superbes initiales et d'enlacements. Les colonnes de la table des lieux se terminent par de charmantes vues de villes: il y en a 24. La seconde partie, contenant le calendrier proprement dit, offre à côté de chaque mois le signe du zodiaque, et au bas les attributs propres aux différentes époques de l'année; il y en a également 24, gravés sur bois par un maître de l'école de Francfort. Vient ensuite le tableau des éclipses de Soleil et de Lune, depuis 1518 jusqu'en 1575, au nombre de 63, avec diagrammes pour toutes. A la fin, une table de la Lune, le quadrant, le cadran solaire et l'instrument pour déterminer les heures temporaires, fort bien exécutés, dans toute la grandeur de la page'.

The second work is valuable for its treatise on dialling (pp. 74-243), one of the earliest works on the subject.

- 15095 ——— ELUCIDATIO FABRICÆ USUSQUE ASTROLABII, cui multa et diligens accessit Recognitio, unam cum Schematum Negotio accommodatorum, exactissima Expressione, et Indice Rerum et Verborum copiosissimo; *printed in italics, with numerous fine woodcuts, and folding tables*, 12mo. hf. calf gilt (nice copy); RARE, £1. 5s Lutetiae, Gul. Cavellat, 1553

'Ouvrage qui résume les procédés employés alors pour la construction des astrolabes; une analyse a été donnée dans l'Histoire de l'Astronomie de Delambre. — *Biogr. Gén.*

- 15096 ——— IN PROCLI DIADOCHI, Authoris grauiissimi SPHÆRAM MUNDI, omnibus Numeris longè absolutissimus COMMENTARIUS, ante hac nunquam Typis excusus; *with numerous diagrams*, folio, sewn (RARE), £1. 5s (col.: *Tubingæ, ex offic. Hulderrichi Morhart*, 1534

- 15097 **STONE** (Edmund, F.R.S.) ANALISE DES INFINIMENT PETITS, comprenant le CALCUL INTEGRAL dans toute son Etendue; avec son Application aux Quadratures, Rectifications, Cubatures, Centres de Gravité, de Percussion, et de toutes Sortes de Courbes, traduit par M. RONDET; *with 4 folding plates: ANALYSE DES INFINIMENT PETITS, pour l'Intelligence des Lignes Courbes*, par le Marquis de l'Hospital, 2^e Edition; *with 11 folding plates—2 vols. 4to. in 1, old hf. calf (back damaged), with long presentation inscription by James Lockhart (well-known amateur mathematician)*, 8s 1735-16

L'Hospital's work was the first published in French on the differential calculus. Stone's was originally published with his English translation of the first work, and was later translated into French as the first work published in that language on the integral calculus.

- 15098 [——] THE DESCRIPTION, NATURE and GENERAL USE, of the SECTOR and PLAIN-SCALE, briefly and plainly laid down; as also, a Short Account of the USES of the LINES of NUMBERS, ARTIFICIAL SINES and TANGENTS; 2nd Edition, *with 3 folding plates*, post 8vo. (pp. 44), sewn (rare), 7s 6d 1728

The authorship of this brochure is not noticed in D. N. B., Allibone, or Poggendorff, and was unknown to Halkett and Laing, but may be inferred from the preface being signed E. S. Stone also revised the new edition of Cunn's Treatise of the Sector in 1729.

- 15099 ——— NEW MATHEMATICAL DICTIONARY, wherein is contain'd, not only the Explanation of the bare Terms, but likewise an HISTORY of, with the Rise, Progress, State, Properties, etc. of Things in PURE MATHEMATICKS and NATURAL PHILOSOPHY, first edition, *with numerous woodcuts and diagrams*, 8vo. contemporary calf gilt (rare), 6s 1726

- 15100 ——— SECOND [LAST] EDITION. with [Preface and] large Additions, *with numerous woodcuts and diagrams*, 8vo. old calf, roughly rebaked (title and some ll. soiled), 5s 1743

- 15101 ——— Some REFLECTIONS on the UNCERTAINTY of many ASTRONOMICAL and GEOGRAPHICAL POSITIONS, with Regard to the Figure and Magnitude of the EARTH, the finding the LONGITUDE at SEA by WATCHES, and other Assertions of the most eminent Astronomers; with some Hints towards their Reformation and Emendation, post 8vo. (pp. 135), sewn, 6s 1766

'Consisting of a series of propositions attacking the accuracy of the conclusions of astronomers concerning the shape of the earth and other matters of a similar kind.'—D. N. B.

'Exposing the weakness and insufficiency of the arguments and proofs of those who will have the figure of the earth spherial or spheroidal, with some hints tending to shew the uncertainty of the truth of the Newtonian physical part of astronomy.'—p. 17.

- 15102 **STONE** (Edward, pr., *Wadham Coll.*) THE WHOLE DOCTRINE of PARALLAXES explained and illustrated by an Arithmetical and Geometrical Construction of the TRANSIT of VENUS over the Sun, June 6th, 1761; with a new and general Method of determining the Places where any Transit of this Planet, and especially that which will be June 3d, 1769, may be best observed for the Investigation of its Parallax, *with numerous diagrams*, post 8vo. (pp. 108), sewn, 4s Oxford, 1758

- 15103 **STORER** (Frank Humphreys; *Mass. Inst. Technology*) FIRST OUTLINES of a DICTIONARY of SOLUBILITIES of CHEMICAL SUBSTANCES, thick roy. 8vo. cl., *with auto. of Alex. Scott, F.R.S.* (VERY SCARCE), £2. 10s Cambridge [Mass.], 1864

The only dictionary of chemical solubilities ever attempted, and at the same time the first English alphabetical catalogue of chemical substances.

PLATE 1.

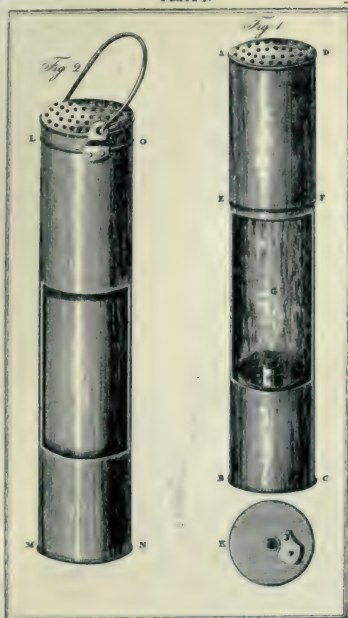


PLATE 2.

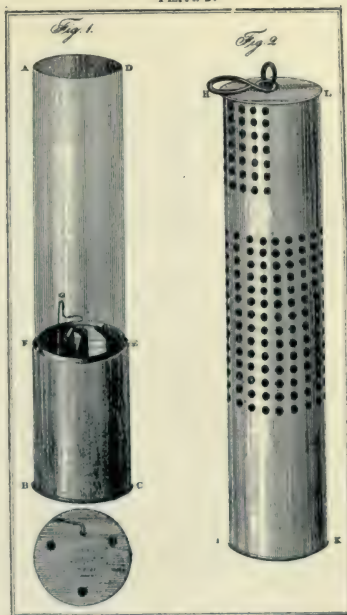


PLATE 3.

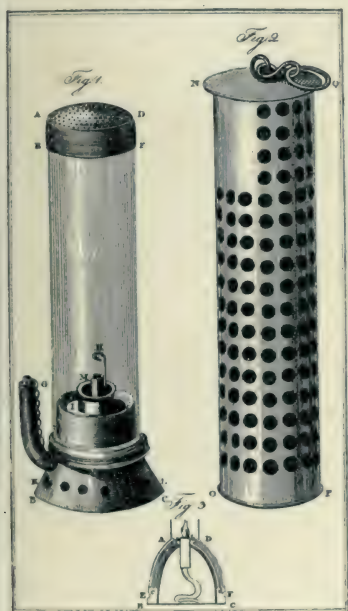
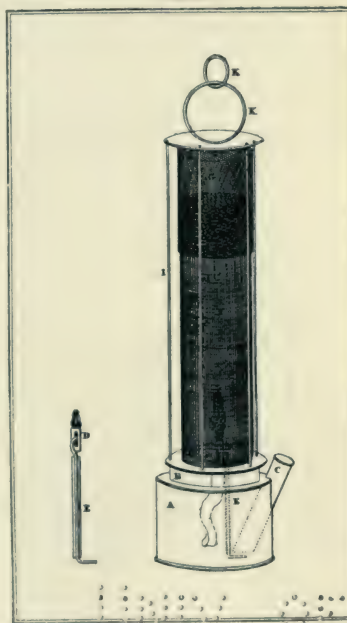


PLATE 4.



No. 15036 (page 754).

George Stephenson's Safety Lamp.

KL		Aprilis.	Solis motus ics	Lune motus medius	Lune Cen- trum	Lune ar gumētū medium
		¶ A	G m	S G m	S G m	S G m
1	e		05 21 22	3 29 3	1 28 43	3 18 55
2	A	4 Non	4 22 20	4 12 14	2 23 6	4 1 59
3	b	3 Non	23 19	4 25 24	3 17 29	4 15 3
4	c	2 Non	Ambrosij episcopi.	12 24 17	5 8 35	4 11 52
5	d	None.		1 25 15	5 21 45	5 6 15
6	e	8 Idus		26 14	6 4 56	6 0 37
7	f	7 Idus		9 27 12	6 18 7	6 25 0
8	g	6 Idus	Marię Egyptiace	28 10	7 1 17	7 19 23
9	A	5 Idus		17 29 8	7 14 28	8 13 46
10	b	4 Idus	¶ Taurus	6 0 6	7 27 38	9 8 9
11	c	3 Idus		1 5	8 10 49	10 2 32
12	d	2 Idus		14 2 3	8 24 0	10 26 55
13	e	Idus		3 3 1	9 7 10	11 21 18
14	f	18 Kal	Maę Tiburtij & valeriani	3 59	9 20 21	0 15 41
15	g	17 Kal	¶ Claus rogationū	11 4 57	10 3 31	1 10 3
16	A	16 Kal		5 54	10 16 42	2 4 26
17	b	15 Kal		19 6 52	10 29 52	2 18 49
18	c	14 Kal		8 7 50	11 13 3	3 23 12
19	d	13 Kal		8 48	11 26 14	4 17 55
20	e	12 Kal		9 46	0 9 24	5 11 58
21	f	11 Kal		10 43	0 22 35	6 6 21
22	g	10 Kal		11 41	1 5 45	7 0 44
23	A	9 Kal	Georgij martiris.	12 39	1 18 56	7 25 7
24	b	8 Kal		13 36	2 2 7	8 19 29
25	c	7 Kal	Marci euangelistę	14 34	2 15 17	9 13 52
26	d	6 Kal		15 32	2 28 28	10 8 15
27	e	5 Kal		6 29	3 11 38	11 2 58
28	f	4 Kal	Vitalis martiris	17 27	3 24 49	11 27 1
29	g	3 Kal	Claus Penthecostes	18 24	4 7 59	0 21 24
30	A	2 Kal		19 22	4 21 10	1 15 47



¶

¶

Aprilis patulę nucis sub vmbra
Post conuiuia/dormio libenter



B v

- 15105 **STOKES** (Sir George Gabriel, P.R.S., *Lucasian Prof. Mathematics, Cantab.*) MATHEMATICAL and PHYSICAL PAPERS, reprinted from the original Journals and Transactions, with Additional Notes by the Author [and (vv. IV--V) SIR JOSEPH LARMOR, F.R.S., M.P.], with numerous illustrations, 5 vols. 8vo. cl., £2. 5s (p. £3. 15s) *Univ. Press, Cambridge, 1880-1905*
- 15106 ——— VOLUMES I AND II ONLY, with illustrations, 2 vols. 8vo. cl., 15s (p. £1. 10s) *apud eandem, ibidem, 1880-3*
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¹In this volume Telford's accounts of his various engineering enterprises, great and small, are ample and luminous. Rickman added biographical traits and anecdotes of him. The supplement contains many elucidations of his professional career and a few of his personal character, among the former being his reports to Parliament, etc., and those of Parliamentary Commissioners under whose supervision some of the most important of his enterprises were executed. In one of the appendixes his poem on 'Eskdale' is reprinted. There is also a copy of his will.—*D. N. B.*

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¹L'Édition, ayant été complètement perdue dans un naufrage, ne fut réimprimée que longtemps après la mort de Maurolico, à l'aide d'un exemplaire retrouvé en 1681.—*Biogr. Gén.*

²Ce volume est si rare en Allemagne, que, malgré le témoignage de Nic. Heinsius, l'existence en a paru douteuse à Ebert.—*Brunet*. The Libri copy fetched 180 francs in 1857.

³Il Sig. Libri che pure nella sua storia ci dà una breve ma esatta notizia sulla vita e le opere del Maurolico, non fa menzione di questo libro rarissimo. Anzi mi sembra che questa opera sia appunto quella raccolta d'autori greci di cui il Maurolico nella sua cosmografia annunziava la traduzione, e della quale il medesimo Sig. Libri deplorava la perdita.—*Riccardi*.

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¹Source; unknown to Cicognara.—*Libri Catalogue*. The above edition is the best; it was reprinted in 1617. The work is interesting for containing illustrations and descriptions of contemporary surveying instruments. The above copy contains the cancelled title, dated 1588.

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The work deals mainly with naval architecture. Vol. I contains an interesting memoir on the origin of the mariner's compass, and v. II one on the Language and Antiquities of Brittany.

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This work appears to be very rare. It was unknown to Poggendorff, who mentions however the author's other works, nor is it mentioned by other bibliographers.

According to R. Stuart (*Historical and Descriptive Anecdotes of Steam Engines*, Vol. II., p. 618), the author, who is not included in the *Biographie Générale*, 'came to England in 1716 to obtain information regarding the mode of mining followed at Newcastle. He remained in the neighbourhood for some years, and was employed as an engineer at a coal-mine; he was a pupil of Desaguliers, and some of his improvements on the diving bell are described in the Doctor's *Experimental Philosophy*. He returned to Sweden in 1726, and erected an atmospheric engine [*supra*], the parts of which he got fabricated in England. He was captain of mechanics, and military architect to the King of Sweden; and was in correspondence with some of his friends in the Royal Society until his death. He invented a mode of warming conservatories by hot water.' According to the *Record of the Royal Society*, he was elected a Fellow in 1731.

- 15336 **TROILI** (Giulio, da Spinlamberto) PARADOSSI per praticare la PROSPETTIVA SENZA SAPERLA, Fiori, per facilitare l'Intelligenza, Frutti, per non operare alla Cieca [nuova Edizione, coll' Aggiunta della III^a. PARTE]; with numerous woodcuts and diagrams, folio, boards (RARE), 15s Bologna, Gios. Lonati, 1683

'Raro.'—Riccardi. The third part consists of 'Prattica del Parallelogrammo da Designare del P. Christoforo Scheiner, s.j.' (v. also Nos. 14719-20 ante).

- 15337 **TROMMSDORFF** (Johann Bartholomäus, *Univ. Erfurt*) GESCHICHTE des GALVANISMUS, oder der galvanischen Elektrieität, vorzüglich in chemischer Hinsicht, 2. Auflage, 8vo. boards, 3s 6d Erfurt, 1808
- 15338 **TROPFKE** (Johannes) GESCHICHTE der ELEMENTAR-MATHEMATIK in systematischer Darstellung; with 35 illustrations, 2 vols. large 8vo. cl., with Dr. Emil Reich's bookplate, 14s (p. M. 22) Leipzig, 1902-3
- 15339 **TROTTA** (Giovanni Battista, S.J.) NUOVO HOROLOGIO NOTTURNO per Mezzo delle STELLE, tanto nell' Hore Astronomiche, quanto nell' Hore Italiane e Babiloniche, con Aggiunta anco dell' HOROLOGIO POLARE corretto, ed accresciuto; e dell' HOROLOGIO della LUNA, sm. 4to. sewn (rare), 15s Napoli, 1651
- 15340 — PRAXIS HOROLOGIORUM EXPEDITISSIMA, per quam varia Horologiorum Genera, presertim Verticalia, per novas Tabulas facillimè describuntur; with diagrams, 4to. contemporary vellum (binding wormed); RARE, £1. 5s *ibidem*, 1631

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 Dux, SRI Arch-Thesaurarius & Elector & Inauguratus,
 20. *Octobris*, 1714.



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- | | |
|---|--|
| <p>A. A. Is the Seven First Rates, and Fourteen Second Rates Unrigg'd, and Lying in a Harbour.</p> <p>B. Is Five and Forty Third Rates Fore-shortned, with the Heads toward, Under-sail.</p> <p>C. Is Three and Sixty Fourth Rates Fore-shortned, and with the Sterns toward.</p> | <p>D. Is Forty Fifth Rates, Under-sail.</p> <p>E. Is Thirty Fire Ships, Under-sail.</p> <p>F. Is Four and Twenty Sixth Rates.</p> <p>G. Is Nine Bomb Vessels.</p> <p>H. Is Fifteen Yachts, or Pleasure Boats.</p> <p>I. Is Ten Advice Boats.</p> |
|---|--|

No. 15173 (page 762).

Portrait of George I., surrounded by the 257 ships of the Royal Navy.

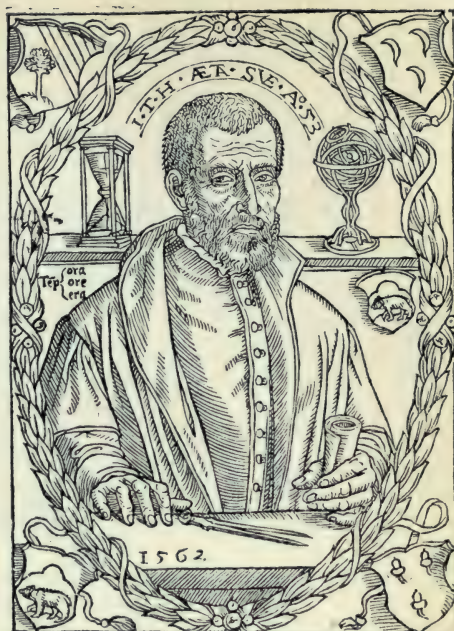
OPVSCVLVM
PERPETVA ME-
MORIA DIGNISSIMVM, DE
NATVRA MAGNETIS, ET EIVS
EFFECTIBVS.

De motu continuo.
Item Demonstratio proportionū motuum localium, cons-
tra Aristotelem & alios Philosophos.
De motu alio celerrimo, hactenus incognito.

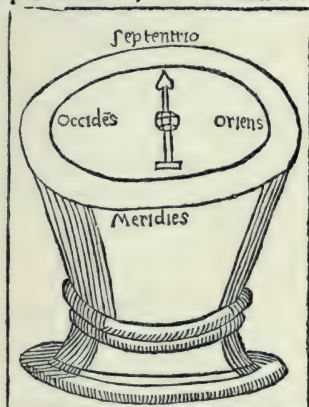
Authore Ioanne Taisnierio Hannonio, vtriusque
Iuris Doctore, Poëta Laureato, Musico & Rc.
Gore Sacelli Mufices Reuerend. Colo-
niensis Archiepiscopi, &c.



COLONIAE,
Apud Ioannem Birckmannum,
Anno M. D. LXII.



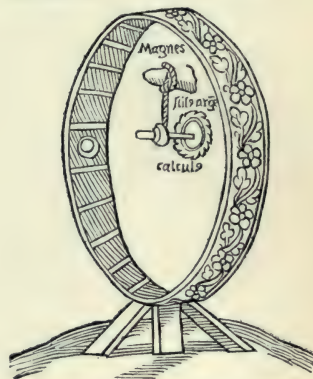
12 DE MOTV CONTINVO,
res aequalis ponderis, dein axem affiges per medium, sus-
per quē voluetur rotula, axe omnino immobili manente,



cui iterum axi stylus adducatur argēteus affixus eidem,
interque duas casulas collocatus, in cuius summitate Ma-
gnes collocetur. In hunc modum preparatus, reducatur
primū ad formam rotundam; dein (ut dictum est) Poli ipsi
inueniantur: postea in aëlis Poli, duo latera oppsita, in-
terque Polos media elimentur, & quasi ad formam oui,
lapis

IOANNES TAISNIER HANNO.

14



rot.æ in imam partem sit pēpetuus, & casus calculi in op-
positam, inter quoslibet duos denticulos receptus, etiam
pēpetuus erit, qui quidē suo pōdere appetet Centrum ter-
ræ, in unumque locum. Quare cum permittet denticulos cir-
ca Magnetem quiescere, fiet tandem, ut inlstituto satisfa-
ctum fuerit. Sint autem loca intermedia denticulorum,
tali arte excavata, ut aptē cadentem calculum recipiant,
ut præfens ostendit figura. Et hæc hactenus pauca com-
pendiose narrata de motu continuo.

C 2 AD

No. 15198 (page 763).

The second published work on magnetism.

- 15344 **TUPINIER** (—, *Director of Naval Constructions*) OBSERVATIONS on the DIMENSIONS of the SHIPS of the LINE and FRIGATES in the FRENCH NAVY, translated by a British Officer [CAPT. WILLIAM JONES, R.N.], 8vo. boards (scarce), with bookplate of Rear-Adml. Lord Adolphus Fitzclarence (younger son of William IV. by Mrs. Jordan), 8s 6d *privately printed, 1830*
The original work contained the program adopted by the French Government for greatly increasing the French Navy with ships vastly superior in build and armament to any then in existence. The translator strikes a warning note in the preface as to the threat implied by it to British naval supremacy.
Only a few copies of the translation were privately printed. There is no copy of either original or translation in the Library of the Institution of Naval Architects.
- 15345 **TURNBULL** (Laurence, M.D., *Franklin Inst.*) The ELECTRO-MAGNETIC TELEGRAPH, with an Historical Account of its Rise, Progress, and present Condition, and also practical Suggestions in regard to INSULATION, and PROTECTION from LIGHTNING, with Appendix, containing several important Telegraphic Decisions and Laws; 2nd Edition, improved, with 2 plates and 69 woodcuts, large 8vo. cl. (scarce), 12s *Philadelphia, 1853*
One of the best early histories of the electric telegraph, containing a good description of the numerous systems then in use, or recently invented. It includes a list of the American and English telegraphic lines then existing, and a chapter 'on the Importance of the Telegraph on Railroads.'
- 15346 **TURNER** (G. C.) GRAPHICS applied to Arithmetic, Mensuration and Statics, with 316 diagrams, cr. 8vo. cl., 3s (p. 6s) 1908
- 15347 **TURNER** (Herbert Hall, F.R.S., *Savilian Prof. Astronomy, Oxon.*) ASTRONOMICAL DISCOVERY, with 15 portraits and plates, 8vo. cl., 7s (p. 10s 6s nett) 1904
Containing chapters on Uranus and Eros; Discovery of Neptune; Bradley's Discoveries; Accidental Discoveries; Schwabe and the Sun-Spot Period; the Variation of Latitude.
- 15348 ——— The GREAT STAR MAP: a brief General Account of the International Project known as the Astrographic Chart, with frontispiece of Cluster M. 3. *Canis Venatici* by G. W. Ritchie, cr. 8vo. cl., 2s 1912
- 15349 ———, MISCELLANEOUS PAPERS of the UNIVERSITY OBSERVATORY, OXFORD, edited by, 1894-1914, with illustrations, 4 vols. 8vo. cl., with author's inser. to the Rt. Hon. Sir William R. Anson, M.P. (as below), £1. 5s *Oxford, 1902-14*
'The Warden of All Souls' with the Compts. of the Savilian Professor of Astronomy.'—*Inscr. on flyleaf of vols. I-III.*
A collection of 100 papers by the EDITOR, PROF. H. C. PLUMMER, F. A. BELLAMY, and a few others.
- 15350 ——— VOLS. I AND II ONLY, 2 vols. 8vo. cl., with inser. to F. J. Jervis-Smith, pr., F.R.S., 10s *ibidem, 1902-5*
- 15351 ——— MODERN ASTRONOMY: some Account of the Revolution of the Last Quarter of a Century, with 30 plates and other illustrations, cr. 8vo. cl., 3s (p. 6s nett) 1901
- 15352 **TURNER** (John) MATHEMATICAL EXERCISES: containing the Principles of the Orthographic and Stereographic Projection of the Sphere, the Investigation of the Sums of Series, the Principles of DIALLING, Problems and Answers, etc., with numerous diagrams, 6 Nos., 1750-2. *Wrexham, n.d.*: Robins (Benjamin, F.R.S.) DISCOURSE concerning the NATURE and CERTAINTY of SIR ISAAC NEWTON'S METHOD of FLUXIONS, and of Prime and Ultimate Ratios, with diagrams, '35: A NEW METHOD of FLUXIONS, diagrams (pp. 1-58; no title and imperfect at end)—in 1 vol. 8vo. old hf. calf, 12s 6d 1735-52
John Turner's work was unknown to Watt, Allibone, or Lowndes. Robins's was a successful refutation of Bp. Berkeley who attacked in his Analyst (v. Nos. 614-5 ante) Newton's principle of ultimate ratios.
- 15353 **TURNOR** (Christopher Hatton, *Rifle Brigade*) ASTRA CASTRA: EXPERIMENTS and ADVENTURES in the ATMOSPHERE, with 5 plates containing 22 portraits of celebrated balloonists, 34 fine photozincographs of historical ascents or balloons from rare contemporary prints, and numerous woodcuts, impl. 4to. original cl., uncut, t. e. g. (SCARCE), £1. 10s 1865
The best and fullest account of ballooning, containing extracts from noted works, a bibliography, and a chronological list of ascents, 1783-1848, and incidentally giving an account of the meteorological observations during the ascents.
- 15354 **TURNOR** (Edmund, F.R.S., M.P.) NARRATIVE of the EARTHQUAKE felt in LINCOLNSHIRE, and the Neighbouring Counties, on the 25th of February, 1792, 4to. (pp. 6), sewn, 2s 1792
- 15355 **TURPAIN** (Albert, *Univ. Poitiers*) Les APPLICATIONS PRATIQUES des ONDES ÉLECTRIQUES: Télégraphie sans Fil, Télégraphie avec Conducteur, Éclairage, Commande à Distance; with 271 illustrations, 8vo. cl., 5s 6d (p. F. 12 nett) 1902
- 15356 **TYCHSEN** (Nicolai) KURZES CHEMISCHES HANDBUCH; with vignette of a chemical laboratory. 8vo. sewn, 3s 6d *Kopenhagen, 1787*
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- 15362 ——— The TESTING of MATERIALS of CONSTRUCTION: a Text-Book for the Engineering Laboratory and a Collection of the Results of Experiment, with 5 plates and 141 other illustrations, thick 8vo. cl., with auto. of F. J. Jervis-Smith, pr., F.R.S., 7s (p. £1. 1s) 1888

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- 15364 UNITED STATES GEOLOGICAL SURVEY: MINERAL RESOURCES of the UNITED STATES, edited by ALBERT WILLIAMS JR. and DAVID T. DAY, 1882-4, '86-8, '91, and '93, 7 vols. *Washington, 1883-94*
8vo. cl., 10s
- 15365 ——— GEOLOGICAL and GEOGRAPHICAL SURVEY of the TERRITORIES, edited by F. V. HAYDEN, I.—XI. ANNUAL REPORT, and PRELIMINARY FIELD REPORT, with numerous folding plates and maps, and woodcuts, 10 vols. 8vo. cl. (partly o.p.), £1. 5s *ib.*, 1869-79
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- 15367 URRIOLO (Giro L.) Sur les VARIATIONS de la TEMPÉRATURE d'ÉBULLITION de l'EAU à PANAMA, roy. 8vo. sewn, 1s 6d *Panama, 1908*
- 15368 UZIELLI (Gustavo) Di alcune PROPRIETÀ delle ROCCE e delle TERRE in Relazione alla Ricerca di Acque Potabili ed alla Perforazione delle Gallerie; with folding plate, 8vo. (pp. 50), sewn, 1s 6d *Firenze, 1899*
- 15369 VAIL (Alfred) The AMERICAN ELECTRO-MAGNETIC TELEGRAPH, with the Reports of Congress, and a Description of all Telegraphs known, employing Electricity or Galvanism, first edition, with 81 woodcuts, 8vo. hf. roan (VERY SCARCE), £1. 5s *Philadelphia, 1845*
Pp. 115-208 contain an account of all the magneto-electric telegraphic systems known at the time, from Lomond's, invented in 1787, to Wheatstone's rotating disc telegraph, invented in 1841, and also include the author's own, the first electro-magnetic printing telegraph invented (in 1837).
There was no copy of the above edition in the Ronalds Library. The work was translated into French, German, and Italian.
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A very rare work of which Riccardi, who mentions the work in *Biblioteca Matematica Italiana*, Supp. V, was only able to quote the above copy. It is not mentioned by other bibliographers, e.g. Prof. de Morgan and Poggendorff, nor was there a copy in the Libri Library.
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Antverpiæ, Christ. Plantinus, 1585

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Venetis [c. 1595]

An extremely rare and interesting work of which three varieties are known: two having the descriptions only in Latin and Italian, one issue of which has only 40 plates, and the third as above with the descriptions also in Spanish, French, German, and 19 plates. This issue is the rarest of all. Some of the plates are of great importance, e.g. plate 38 'Homo volans', giving a perfect representation of a parachute, plates 34-36 suspension bridges, of which no. 34 is the earliest description of one wholly of iron, 49 a diving belt, 41 a digging machine, 43 a rope-making machine, 40 a boat with paddle wheels going up a river, and a great variety of wind, water, and mechanically-driven mills, oil presses, etc. Plate 4 represents 'Ecclesia Sibenici'.

The author, a native of Sebenico, Dalmatia, was Bishop of Partibus of Canadum, in Hungary, and in his later years appears to have lived in Venice. There is a full description of the work in M. Libri's *Histoire des Sciences Mathématiques*, where it is termed 'un ouvrage très rare qui ne se trouve guère indiqué par les bibliographes.'

At the end of the descriptions is a List of Machines of the author's own invention, 'fra le quali veramente alcune sono interessantissime' (Riccardi).

No copy of this work can be traced as having been sold at auction within the last 30 years.

- 15388 **VERNEUIL** (Philippe Édouard Poullotier de; *de l'Institut*; F.R.S.), et Édouard **COLLOMB**: **CARTE GÉOLOGIQUE** de l'ESPAGNE et du PORTUGAL, 2^e Édition (26 × 35 inches), finely coloured; mounted on linen and folded, in cl. case, 4s
[c. 1865]

- 15389 **VIERI** [detto il **VERINO** II^o] (Francesco di Giovambattista de', *da Firenze*) **TRATTATO** nel quale si contengono i Tre Primi Libri delle **METHEORE**, nuovamente ristampati, e da Lui ricorretti con l'Aggiunta del Quarto Libro, 12mo. fine copy in old vellum (*rare*), 15s
Firenza, G. Marescotti, 1582

Second and last edition of this early treatise on meteorology, and the only one containing the fourth book. Besides meteorological subjects, it treats of comets, the tides, and the rainbow. Book IV (pp. 187-424) treats of Aristotelian meteorology and physics.

The author is not noticed by Poggendorff.

- 15390 **VIÈTE** [latine **VIETA**] (François) **OPERA** **MATHEMATICA**, Operâ atque Studio FRANCISCI À **SCHOOTEN**; with numerous diagrams (*a few with moveable slips*), folio, boards, uncut (*RARE*). £1. 17s 6d
Lugd. Batav., B. et A. ELZEYR, 1646

'Belle édition.'—Brunet.

In his most important work, *In Artem*, 'the earliest work on symbolic algebra, explaining how algebra could be applied to the solution of geometrical problems', he 'introduced the use of letters for both known and unknown (positive) quantities, a notation for the powers of quantities, and enforced the advantage of working with homogeneous equations . . . One of his improvements was that he denoted the known quantities by the consonants B, C, D, etc., and the unknown quantities by the vowels A, E, I, etc., the other was to introduce new symbols to represent the square, cube, etc. of quantities which had already occurred in the equations . . . These two improvements were almost essential in any further progress in algebra. . . Vieta's works on geometry are good. He applied algebra and trigonometry to help him in investigating the properties of figures', etc. etc. etc.—W. W. R. Ball.

'The greatest mathematician of the Sixteenth Century.'—Thomas Fowler, *pr.*, *President of Corpus*.

- 15391 ——— **PRINCIPES de COSMOGRAPHIE: tirez d'un Manuscrit de Viète, et traduits en François; with astronomical diagram**, 18mo. old vellum (*rare*), 10s 6d
A. Courbé, 1637

- 15392 ——— **ZETETICORUM** Libri V; with diagrams, folio, limp vellum wrapper (*RARE*), 15s
s. l. a. aut t. n.

This work, which treats of the solution of equations, was originally published as an appendix to Vieta's *In Artem Analyticam Isagoge*. The above edition, which is quite different from that of 1593, has no title, and is numbered from 1 to 24, with the signatures A—M in twos, and appears to be unknown to bibliographers.

- 15394 **VIÈTE** [*latine VIETA*] (François) OPUS RESTITUTÆ MATHematicæ ANALYSEOS, seu ALGEBRA NOVA [in Artem Analyticam Isagoge. Zeteticorum Libri V. Effectuum Geometricarum Canonis Rencensio. Supplementum Geometrie (*imperfect at end*)] ; with diagrams : VARIORUM de REBUS MATHematicis RESPONSORUM Liber VIII., cuius præcipua Capita sunt, de Duplicatione Cubi ; et Quadratione Circuli ; quæ claudit Προῤῥησις, seu Ad Usus Mathematici Canonis Methodica ; with woodcut vignette on title, and numerous diagrams—2 vols. folio in 1, old limp vellum (VERY RARE), £2. 10s

Turonis, I. Mettayer, 1591-3

All the above are original editions and of great rarity, having been privately printed for distribution among the author's friends only. They include his most important work, *In Artem Analyticam Isagoge*.

- 15395 **VIGENÈRE** (Blaise de, Bourbonnois) TRAICTÉ des CHIFFRES, ou Secretes Manieres d'Ecrire ; with plates and other illustrations, 4to. fine copy in old calf (RARE), £1. 1s 1586

'Il y a beaucoup d'érudition cabalistique.'—*Biogr. Gén.*

- 15396 — TRAICTÉ du FEU et du SEL. Excellent et rare Opuscule, trouvé parmy ses Papiers apres son Deceds, dernière [2^e] Edition, reveuë et corrigée ; with engraved vignette on title, 4to. large copy in old limp vellum (*slightly water-stained*) ; RARE, 17s 6d Rouen, 1642

This work contains the first description of crystallised benzoic acid. 'On y trouve une recette pour faire de l'or.'—*Biogr. Gén.* It was translated into English in 1649, and into Latin in 1613 (for *Theatrum Chemicum*).

- 15397 **VILLE** (Georges) On ARTIFICIAL MANURES, their Chemical Selection and Scientific Application to Agriculture, translated and edited by SIR WILLIAM CROOKES, P.R.S., with 5 folding plates (*one coloured*), and woodcuts, 8vo. cl., 4s (p. £1. 1s) 1879

- 15398 — NEW EDITION, revised by SIR WILLIAM CROOKES, P.R.S., and JOHN PERCIVAL, with 5 folding plates (*one coloured*), and woodcuts, 8vo. cl., 7s (p. 10s 6d nett) 1909

The author first demonstrated that wheat would grow in calcined sand to which salts of ammonia only were added.

- 15399 **VIMERCATO** (Giovanni Battista, Monaco di Certosa) DIALOGO [della Descriptione Teorica et Pratica] de gli HOROLOGI SOLARI: nel quale con Ragioni speculative, et pratiche facilmente s'insegna il MODO di FABRICAR tutte le Sorti di HOROLOGI, nuovamente ristampato, con Postille in Margine, ed un Aggiunta di un Horologio da servir sene al Lume della LUNA, d' à i Raggi di essa per saper qual Hora s'ii della Notte ; with 3 folding plates, and numerous large woodcuts, sm. 4to. contemporary vellum (*sound copy*) ; RARE, £1. 10s Padova, 1672

Last edition of this popular work on dialling. All editions of this work, which was unknown to Lalande, Poggendorff, and Brunet, are now VERY RARE. 'Buon trattatello di gnomonica.'—*Riccardi*.

- 15400 **VINTÉJOUX** (F.) NOUVELLES TABLES d'INTERÊTS COMPOSÉS et d'ANNUITÉS, et Précis de la Théorie et de la Pratique des Opérations Financières à Long Terme, particulièrement des Emprunts, 8vo. hf. French morocco neat, 6s (p. F. 12 nett) 1905

- 15401 **VIOLLE** (Louis Jules Gabriel, de l'Institut) COURS de PHYSIQUE, TOME I: PHYSIQUE MOLÉCULAIRE ; with 566 woodcuts, large 8vo. (pp. 1021), hf. morocco gilt (*nice copy*), 15s (p. F. 28 nett sewn) 1884

- 15402 — ANOTHER COPY, 2 vols. hf. calf neat, 14s 1883-4

- 15403 — TOME II 1^{RE} PARTIE: ACOUSTIQUE ; with 163 woodcuts, large 8vo. hf. calf neat, 5s (p. F. 9 nett sewn) [1886]

- 15404 **VISPRÉ** (François Xavier) DISSERTATION of the GROWTH of WINE in ENGLAND, to serve as an Introduction to a Treatise on the Method of Cultivating Vineyards, in a Country from which they seem at present entirely eradicated, and making from them GOOD SUBSTANTIAL WINE, 8vo. (pp. 69), sewn, 6s 6d Bath, 1786

The vineyards got entirely eradicated because post-Reformation stomachs were weaker than their Medieval forebears. But that wine can be grown in England was shown by the late Marquess of Bute in Glamorganshire, where the vineyard is still kept up. Whether Lord Bute's guests at Castell Coch liked the brand any more than they did William Barges's grand oaken settles is not recorded.

- 15405 **VITELLIONIS** Mathematici Doctissimi ΠΕΡΙ 'ΟΠΤΙΚΗΣ, id est de NATURA, RATIONE, et PROTECTIONE RADIORUM VISUS, Luminum, Colorum atque Formarum, quam vulgo PERFECTIVAM vocant, Libri [cum Prefatione PETRI APIANI], editio princeps ; with pretty woodcut on title, large arms, and very numerous diagrams, Norinbergæ, Jo. Petreius, 1535: Euclidis ELEMENTORUM GEOMETRICORUM Libri XV, cum Expositione THEONIS in priores XIII à BARTHOLOMÆO ZAMBERTO Veneto Latinitate donata, CAMPANI in omnes, et HYPsiclis Alexandrini in duos postremos: adiecta sunt PHENOMENA, CATOPTICA et OPTICA, deinde Protheoria MARINI et DATA, postremum, OPUSCULUM de LEVI et PONDEROSO, hactenus non visum ; with numerous woodcut initials and diagrams, Basileæ, Joh. Hervagius, 1537—2 vols. folio in 1, old oaken boards, covered with stamped pigskin, with metal clasps (*very fine and large copies*) : rare, £3. 15s 1535-7

Vitello's work contains not only a summary of all that was known on optics to the ancients and to Alhazen, but also a number of original investigations.

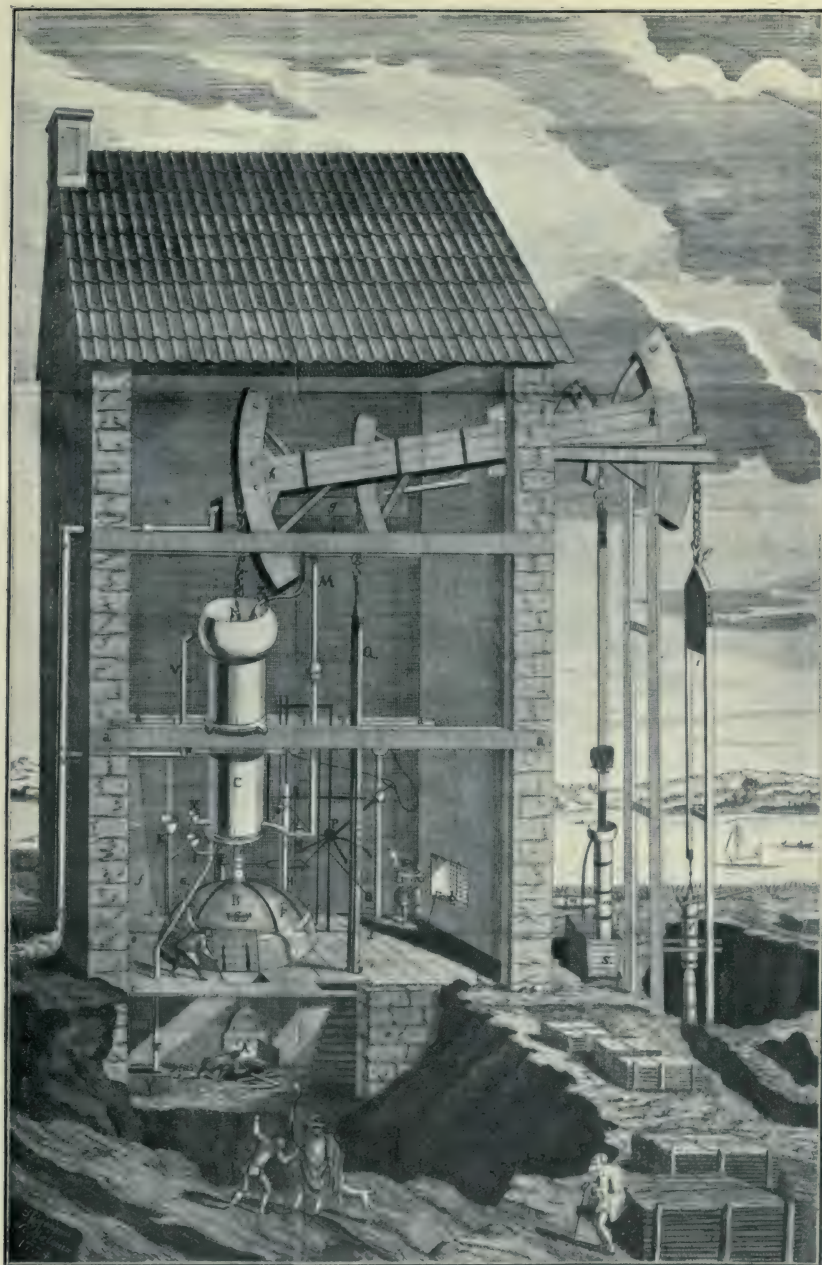
'A work on optics less diffuse and more systematic than that of Al Hazen, on which it was based. Witelo explained the twinkling of stars as due to the motion of the air, and showed that the effect was intensified if the star was viewed through water in motion. He pointed out that the rainbow was not formed by reflexion alone, as was taught by Aristotle, but was due to both reflexion and refraction.'—*Prof. Cajori*.

The existence of a separate edition of his works was unknown to Poggendorff and Heller, who only quote the edition published with Alhazen's works in 1572.

The second piece is the first complete edition of Euclid's works. The above copy contains the three preliminary ll., with an address by Philip Melancthon, which were abstracted in nearly all cases by the clerical censor—an interesting instance of the rigidity of Ecclesiastical censure at the period of the Reformation.

- 15406 **VLACQ** (Adriaan) : EPHEMERIDES MOTUUM CÆLESTIUM ad Annos vulgaris Aerae 1633-6, summa Diligentia in Luminarium Motibus et Zyzgyis, ex Tabulis Lansbergianis ab A.V. ; in reliquis Planetis ex Tabulis Rudolphinis a JOANNE KEPLERO supputatæ, cum Instructione super earum Usu ; with vignette on title, and 2 other woodcuts, sm. 4to. boards (*sound and clean copy*), 14s Goudæ, P. Rammasenius, 1632

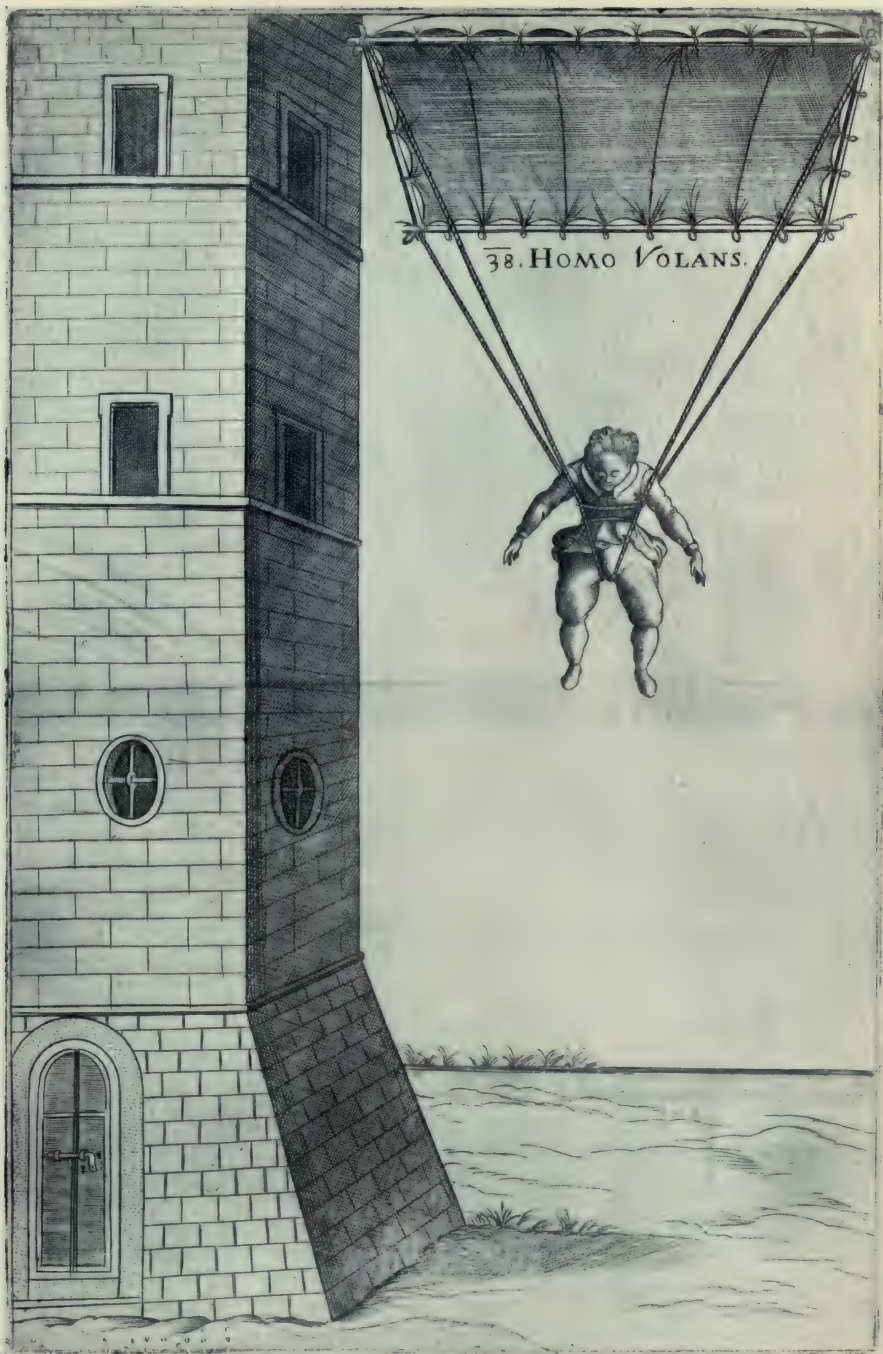
- 15407 — ANOTHER COPY, old vellum (*title slightly defective*), 10s 6d



Danneberg Eld och Luft-Mäskin.
Kongl. Maj:ts och Rikssens Höglofliga Bergs-Collegio
Underdån-ödmjukast Dedicerad af Märten Triewald.

No. 15335 (page 770).

The first steam engine in Sweden.



No. 15387 (page 773).

The first illustration of a parachute.

- 15409 **VITRUVIUS Pollio (Marcus)** [De ARCHITECTURA Libri X] per JOCONDUM SOLITO castigatio fact[i], cum Figuris et Tabula ut jam legi et intelligi possit; *title within woodcut border, and numerous good woodcuts, folio, hf. white vellum (wanting ff. 1, 9, 13, 19, 22, 35-8, 40-1, 64-5, 88-90, 95-7, 104, and first l. of table); rare, 10s 6d (col.) Venetiis, Joa. de Tridino alias Tacuino, 1511*
The first illustrated edition of Vitruvius. The above copy contains the table which is often missing.
- 15410 — De ARCHITECTURA Libri X, cum Commentariis DANIELIS BARBARI, electi Patriarchae Aquileiensis: Multis AEDIFICIORUM, HOROLOGIORUM, et MACHINARUM DESCRIPTIONIBUS, et FIGURIS, una cum Indicibus copiosis, aucti et illustrati; *with very numerous large and fine woodcuts, and diagrams, folio, hf. morocco (name torn off title); RARE, £2. 2s*
ibidem, Franc. Franciscus Senensis et Joa. Crugher, 1567
A beautiful edition, esteemed for the woodcuts it contains. 'Texte de l'édition Lyonnaise de 1552 corrigé sur des conjectures et muni d'un commentaire explicatif. Une partie des figures ont été gravées par Giov. Crugher.'—Grasse.
The Sunderland copy (in calf) fetched £4. 15s.
- 15411 — De ARCHITECTURA Libri X, cum Notis, Castigationibus et Observationibus GUILIELMI PHILANDRI integris; DANIELIS BARBARI excerptis, et CLAUDII SALMASII passim insertis, præmittuntur ELEMENTA ARCHITECTURÆ, collecta ab HENRICO WOTTONO Equite Anglo; accedunt Lexicon Vitruvianum BERNARDINI BALDI Urbinatis, et ejusdem Scamilli Impares Vitruviani, de Pictura Libri III Leonis Baptistæ de Albertis, de Sculptura Excerpta ex Dialogo Pomponii Gaurici . . . cum Indicibus copiosissimis, omnia collecta, digesta, et illustrata a JOANNE DE LAET; *with finely engraved title, and numerous well-executed woodcuts, thick sm. folio, hf. calf gilt (joints cracked, but a sound and clean copy); rare, £3. 3s*
Amstelodami, apud Lud. Elzevirium, 1649
'Magnifique édition.'—A. Willems. 'Belle édition. Elle est encore recherchée, et les exemplaires en sont assez rares.'—Ernest.
It is interesting to find Sir Henry Wotton's treatise among the works included.
'Ce qui donne à cet ouvrage une valeur particulière, c'est qu'il est le seul de ce genre qui soit parvenu jusqu'à nous, c'est qu'il renferme des notions importantes pour l'histoire de l'art, c'est qu'il a été écrit à une époque où l'architecture à Rome atteignit à sa plus grande perfection.'—Biog. Gén.
Book s deals with WATER-SUPPLY and AQUEDUCTS; the 9th with DIALLING, and the 10th with MECHANICS.
- 15412 **VOGEL (Rudolf Augustin, Univ. Göttingen)** INSTITUTIONES CHEMIEÆ ad Lectiones Academicas accommodatæ, Editio altera locupletata, 8vo. *old calf (nice copy), 5s Lugd. Bat., 1757*
The author was a distinguished adherent of the Phlogiston Theory. He denied the metallic character of mercury.
- 15413 — LEHRSÄTZE der CHEMIE, übersetzt und mit Anmerkungen versehen von JOHANN CHRISTIAN WIEGLEB, 8vo. *old hf. calf, 4s 6d* *Weimar, 1775*
- 15414 **VOIGT (Woldemar, Univ. Göttingen)** ELEMENTARE MECHANIK als Einleitung in das Studium der theoretischen Physik; *with 55 illustrations, 8vo. cl., with Dr. Emil Reich's bookplate, 4s 6d (p. M. 12 sewn)* *Leipzig, 1889*
- 15415 — ZWEITE UMGEARBEITETE [NEUESTE] AUFLAGE; *with 56 illustrations, 8vo. hf. German morocco neat, 10s (p. M. 16)* *ibidem, 1901*
- 15416 — KOMPENDIUM der THEORETISCHEN PHYSIK, 2 vols. 8vo. *hf. German morocco, with Dr. Emil Reich's bookplate, £1. 1s (p. M. 36)* *ib., 1895-6*
- 15417 — LEHRBUCH der KRISTALLPHYSIK (mit Ausschluss der Kristalloptik); *with 213 illustrations and folding table, thick 8vo. sewn, 18s (p. M. 30)* *ib., 1910*
- VOLTAIRE (François Marie Aroutet de)** THE ELEMENTS of SIR ISAAC NEWTON'S PHILOSOPHY (1738)—v. NEWTONIANA, No. 12625, ante.
- 15418 **VOSSIUS (Isaac; Canon of Windsor)** VARIARUM OBSERVATIONUM Liber; *with woodcuts, 4to. old white vellum, or, old calf, 12s 6d* *Londni, Robertus Scott, 1685*
Including: de Artibus et Scientiis Sinarum; de Origine et Progressu Pulveris Bellici apud Europæos; de Triremium et Liburnicarum Constructione; de Emendatione Longitudinum; de apparentibus in Luna Circulis; de Causa Gravitatis, etc.; also his well-known 'de Sibyllinis aliisque Christi Natalem præcedentibus Oracleis.'
The dissertation on the construction of triremes was inserted by Grævius in his *Thesaurus Antiquitatum Romanorum*, and is referred to with commendation in Smith of Jordanhill's 'Dissertation on the Navigation of the Ancients.'
- 15419 **VREDEMAN (Jan)** PERSPECTIVA THEORETICA et PRATICA, hoc est, Opus Opticum absolutissimum, continens Aedificiorum, Templorum, Pergularum aliarumque Structurarum perfectissima Fundamenta, Icones atque Delineamenta, juxta veterum ac recentiorum Autorum Doctrina accurate exaratum, multis verò Notis illustratum per SAMUELEM MAROLOIS; *with 65 plates, folio, old vellum (binding damaged and some plates torn); RARE, with fine etched bookplate by Boutet, £1. 1s* *Amsterdam, Joa. Jansson, 1633*
- 15420 **VULLIAMY (Benjamin Lewis, F.R.A.S.)** Some CONSIDERATIONS on the Subject of PUBLIC CLOCKS, particularly CHURCH CLOCKS; *with Hints for their Improvement, with the Supplement, 2 vols. 4to. in 1, (pp. 15 + 31), hf. russia (binding damaged), with author's inscr., 5s* *privately printed, 1828-30*
Upsala, 1866
- 15421 **WACKERBARTH (A. D.)** PROVISIONAL THEORY of LEDA, 4to. (pp. 24), *sewn, with author's inscr., 2s 6d*
- 15422 — ANOTHER COPY, cl., 3s
The planetoid Leda was discovered by Chacornac in 1856.
- 15423 **WAERYWEL (Daniel)** DEMONSTRATIE wegens de QUADRATURA CIRCULI ontdeekt en uytgevonden; *with folding plate, sm. 4to. (pp. 28), boards (headlines cut into); rare, 15s* *Amsterdam, 1712*
The author finds $3 \cdot 142$ as value for π . Holland was the great country of circle-squarers during the XVIII. Century, probably owing to the fact that a money prize was offered there for a 'correct' solution.
- 15424 **WAGNER (Joseph Friedrich)** NOTIZEN über die MINERALIEN-SAMMLUNG von ALEXANDER V. CRICHTON; *with fine portrait of Gotthelf Fischer, and 18 plates, 4to. (pp. 147), sewn, 4s 6d* *Moskwa, 1818*
'Thomas Allan Esquire [F.R.S.] with best compliments from his friend [Sir] A[lexander] Crichton, F.R.S.'—Inscr. on title.

15426 **WADDELL** (John Alexander Low, C.E., *Univ. Tokio*) The DESIGNING of ORDINARY IRON HIGHWAY BRIDGES, with diagrams and 42 folding tables, large 8vo. cl. (o. p.), 6s 6d (p. £1. 1s)

New York, 1884

15427 **WALKER** (Charles Vincent; F.R.S.) ELECTRIC TELEGRAPH MANIPULATION: the Theory, and Plain Instructions in Transmitting Signals to Distant Places, as practised in England, through Electricity and Magnetism, with woodcuts, 16mo. pictorial wrapper (scarce), 5s 1850

Written when the author was telegraph superintendent to the South Eastern Railway, one of the first lines to use the electric telegraph extensively in England. At this date (1850) the writer says the Brighton Railway had no telegraphs!

The book includes a chapter on the Submarine Telegraph. The author also, in conjunction with James Glaisher and Sir G. B. Airy, introduced the system of electric time-signals from Greenwich Observatory.

15428 ——— ELECTROTYPE MANIPULATION: being the Theory, and plain Instructions in the Art of Working in Metals by precipitating them from their Solutions through the Galvanic or Voltaic Electricity, with woodcuts, 16mo. sewn (scarce), 4s 1841

This is probably the earliest English work on electrotyping, as M. H. v. Jacobi did not publish his invention until 1840 (v. no. 9709-10 ante).

15429 **WALKER** (Frederick, C.E.) AERIAL NAVIGATION: a Practical Handbook on the Construction of Dirigible Balloons, Aërostats, Aëroplanes, and Aëromotors, with frontispiece and 104 illustrations, post 8vo. cl. 2s 6d (p. 7s 6d nett) 1902

15430 ——— SECOND EDITION, revised and enlarged, with 123 illustrations, post 8vo. cl., 3s 6d 1910

15431 **WALKER** (James, *Univ. Edin.*, F.R.S.) INTRODUCTION to PHYSICAL CHEMISTRY, third Edition [enlarged], with 50 illustrations, 8vo. cl. 5s (p. 10s nett) 1903

15432 ——— THE THEORY and USE of a PHYSICAL BALANCE, with 3 folding plates, 8vo. sewn, 2s Clarendon Press, Oxford, 1887

15433 [**WALKER** (Obadiah)] PROPOSITIONS concerning OPTIC GLASSES, with their natural Reasons, drawn from Experiments, with vignette of the Sheldonian Theatre on title, and 38 diagrams, sm. 4to. (pp. 46), hf. brown calf, uncut (fine copy); RARE, 17s 6d

Oxford, at the Theater, 1679

An elementary work which seems to have sufficed for the needs of a university education in the latter end of the Seventeenth Century.

The author was Master of University College, Oxford, and went over to Rome on James II.'s accession, who charged him with the uphill task of Romanising the University. Walker only succeeded however in getting 'the curses of all both great and small' (*Anthony d Wood*), a sentiment also expressed in some contemporary doggerel, which was sung by the undergraduates:

'Oh, old Obadiah
Sing Ave Maria
But so will not I a
for why a
I had rather be a fool than a knave a.'

15434 **WALKER** (Ralph) TREATISE on MAGNETISM, with Description and Explanation of a Meridional and Azimuth Compass, for ascertaining the Quantity of Variation, without any Calculation whatever, at any Time of the Day, also Improvements on Compasses in General, with TABLES of VARIATION, for all Latitudes and Longitudes, with 7 folding plates, 8vo. calf gilt (one joint cracked, and title mounted), 7s 6d 1794

15435 ——— ANOTHER COPY, hf. calf, with auto. of John Lee, of Hartwell, Q.C., F.R.S., 9s

Chiefly valuable for the full tables of variation (pp. 139), compiled from observations between 1760 and 1780.

15436 **WALKER** (Comm. William, R.N.) THE MAGNETISM of SHIPS, and the MARINER'S COMPASS: a Rudimentary Exposition of the Induced Magnetism in Sea-going Vessels, and its Action on the Compass, etc., with woodcuts by L. F. W. JEWITT, F.S.A., 12mo. cl. (scarce), 5s 1853

Pp. 1-20 contain an interesting history of the mariner's compass. There is also an account of the author's own compensated compass; with an appendix of official reports.

15437 **WALLACE** (William, F.R.S.E., *Univ. Edin.*) INVESTIGATION of FORMULÆ, for FINDING the LOGARITHMS of TRIGONOMETRICAL QUANTITIES from one another, and a proposed Improvement in the Solution of a Case in Plane Trigonometry, 4to. (pp. 23), sewn, 2s 6d Edin., 1823

15438 ——— NEW SERIES for the QUADRATURE of the CONIC SECTIONS, and the COMPUTATION of LOGARITHMS, with plate, roy. 4to. (pp. 78), sewn, with inscr. to Nevil Maskelyne, pr., F.R.S., 4s 6d ibidem, 1808

15439 **WALLACE** (William) THE LAWS which regulate the DEPOSITION of LEAD ORE in VEINS; illustrated by an Examination of the Geological Structure of the Mining Districts of ALSTON MOOR, with 21 lithographic views and plans (some coloured or folding), 8vo. cl. (map wanting); SCARCE, 7s 6d 1861

15440 **WALLACH** (Otto; *Univ. Göttingen*) TERPENE und CAMPHER: Zusammenfassung eigener Untersuchungen auf dem Gebiet der alicyclischen Kohlenstoffverbindungen, large 8vo. sewn, with inscr. to Prof. W. H. Perkin, F.R.S., 12s (p. M. 18) Leipzig, 1909

A systematic account of the author's important researches on essential oils, made between 1885 and 1903, and containing a new classification of terpenes.

15441 **WALSH** (Francis) THE ANTEDILUVIAN WORLD: or a NEW THEORY of the EARTH: containing a clear Account of the Form and Constitution of the Terrestrial Globe before the Universal Deluge; proving it to be quite different from what it is at present; with the Origin and Causes of the said Deluge, Subterraneous Cavities, Seas, Islands, Mountains, etc., with woodcuts, 8vo. old calf (rare), 8s 6d Dublin, 1743

This grand defence of the Deluge and curious geological paradox was unknown to Watt, Lowndes, Allibone, and other bibliographers.

15442 **WALTER** (Thomas) NEW MATHEMATICAL DICTIONARY: the Explication of all the Terms in Pure and Mixed Mathematics, the Explications, Uses, etc. of the most considerable Instruments, Engines, and Machines, with the Elements of Geometry, with 3 plates and diagrams, 8vo. cl., 5s [1762]

- 15444 **WALLENIN (Ignaz)** EINLEITUNG in die THEORETISCHE ELEKTRIZITÄTSLEHRE; with 81 diagrams, 8vo. cl., 7s 6d (p. M. 12) Leipzig, 1904
- 15445 **WALLERIUS (Johan Gottskalk, Univ. Upsala)** ELEMENTS d'AGRICULTURE Physique et Chimique, traduits du Latin, 12mo. *fine copy in contemporary calf extra, with auto. of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816), and his Calyarth Park book-label, 7s 6d* Yverdon, 1766

An important work in which the author bases the principles of agriculture on a comparative study of the chemical constitution of plants and the soil.

Bishop Watson bought this book to improve his estate in Westmorland, where he lived while Bishop of Llandaff, and took to planting, and what Wordsworth called a vegetable manufactory, while his sons 'merrily pursued cockfighting', and the natural result ensued 98 years *post mortem* in the disendowment of the Church in Wales.

- 15446 ——— **PHYSISCHE CHEMIE: u. Natur und Beschaffenheit der Chemie überhaupt, ihre Geschichte u. s. w.; von den Salzen, dem Schwefel, dem schwefelichten und erdharzigen Körpern; von den 7 halben und 7 ganzen Metallen, und den Produkten derselben, übersetzt mit Anmerkungen von C. A. MANGOLD und C. E. WEIGEL (Bd. I 2. Auflage, mit Anmerkungen von C. E. Weigel); 2 vols. 8vo. in 3, sewn, 5s** Leipzig, 1780-76

The author was Bergman's predecessor as professor of chemistry at Upsala. He promoted the study of mineralogy by giving a more systematic arrangement of minerals.

- 15447 **WALLIS (John, D.D., F.R.S., Savilian Prof.)** DISCOURSE of GRAVITY and GRAVITATION, grounded on Experimental Observations presented to the Royal Society, November 12, 1674, with folding plate, sm. 4to. (pp. 36), hf. brown calf (RARE), £1. 1s J. Martyn, 1675

Interesting as a discourse on the subject on the eve of the discovery of the law of gravitation by Sir Isaac Newton. The work contains many experiments in illustration.

- 15448 ——— **INSTITUTIO LOGICÆ, ad communes Usus accommodata, Editio VI., auctor et emendator, large 12mo. old sheep, rebounded, with auto. of Sam. Roberts, F.R.S., 5s** Ozonii, 1763

- 15449 ——— **MECHANICA: sive, de MOTU, TRACTATUS GEOMETRICUS, Pars I. in qua, de Motu Generalia; de Gravium Descensu, et Motuum Declivitate; de Libra. Pars II. in qua, de Centro Gravitatis, ejusque Calculo. Pars III. in qua, de Vecte, de Axe in Paritrochio, de Trochlea, de Cochlea, de Motibus Compositis, de Percussione, de Cuneo, de Elatere, et Resilitione seu Reflexione, de Hydrostaticis, et Aeris Æquipondio, variisque Questionibus Mathematicis, editio princeps; with finely engraved portrait by W. FAITHORNE, and 17 folding plates, 3 vols. 4to. in 1, sound and large copy in contemporary calf (VERY RARE), £2. 10s Londini, Gul. Godbid, 1670-1**

One of the classics of mechanics, containing the first exhaustive treatment of the theory of the collision of bodies considered as imperfectly elastic bodies—being the solution of a problem propounded by the Royal Society—while Sir Christopher Wren and Huygens treated the subject simultaneously, but confined their theory to perfectly elastic bodies. On these investigations, according to Prof. Mach, Sir Isaac Newton based his researches contained in the *Principia*.

'Wallis geht von dem Grundsatz aus, dass das Moment, das Produkt aus der Masse (Pondus) und der Geschwindigkeit (Celeritas), bei dem Stosse maassgebend sei. Durch dieses Moment wird die Kraft des Stosses bestimmt. Stossen zwei (unelastische) Körper mit gleichen Momenten aufeinander, so besteht nach dem Stoss Ruhe. Bei ungleichen Momenten ergibt die Differenz der Momente das Moment nach dem Stosse.'—Prof. Mach.

The third volume is especially rare, and often wanting.

- 15450 ——— **PARS I. (de Motu Generalia, de Gravium Descensu, et Motuum Declivitate, de Libra); with 2 folding plates, 4to. old calf (roughly rebounded), 15s** *ibidem, apud eundem*, 1670

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- 15522 ——— **On the RESULTS of OBSERVATIONS made with a NEW ANEMOMETER**, 4to. (pp. 15), *sewn*, 1s 6d Cambridge, 1837

- 15523 ——— **On the ROTARY MOTION of BODIES**, 4to. (pp. 10), *unbound*, 1s 6d *ibidem*, 1823

- 15524 **WHIPPLE** (George Chandler; *Harvard Univ.*) **THE MICROSCOPY of DRINKING WATER** [with Bibliography], (pp. 30), with 19 *plates*, and 21 *other illustrations*, 8vo. *cl.*, 7s 6d (p. 15s nett) New York, 1899

- 15525 **WHISTON** (William, *pr.*; *Lucasian Prof. Mathematics, Cantab.*; *translator of Josephus*) **ASTRONOMICAL LECTURES**, with the Astronomical Tables of Flamsteed, Halley, Cassini, and Street, 2nd Edition, corrected, with *engraved frontispiece, and diagrams*, 8vo. *old calf*, 4s 6d 1728

- 15526 ——— **ASTRONOMICAL PRINCIPLES of RELIGION, Natural and Reveal'd**, with Preface of the Temper of Mind necessary for the Discovery of Divine Truth; and of the Degree of Evidence that ought to be expected in Divine Matters, *first edition*, with *copperplates*, 8vo. *old calf gilt*, 4s 6d 1717

Dedicated to Sir Isaac Newton, who balked the author's election as a fellow of the Royal Society.

- 15527 ——— **A NEW THEORY of the EARTH**, wherein the Creation of the World in Six Days, the Universal Deluge, and the General Conflagration are shewn to be perfectly agreeable to Reason and Philosophy; with large Introductory Discourse concerning the Mosaic History of Creation. *first edition*, with *plates and smaller engravings on copper*, 8vo. *old calf* (rare), 12s 1696

With Latin dedication to Sir Isaac Newton.

- 15528 ——— **ANOTHER COPY**; also: Woodward (John, M.D., F.R.S.) **ESSAY towards a NATURAL HISTORY of the EARTH: and Terrestrial Bodies, especially Minerals: as also of the Sea, Rivers, and Springs**, with Account of the Universal Deluge: and of the Effects that it had upon the Earth, *first edition*—2 vols. 8vo. in 1, *sound copies in old calf*. £1. 5s 1696-5

'The MS. was shown to Newton and Wren. It was praised by Locke. . . . Whiston's speculation was meant to supersede the previous theory of Thomas Burnet. He confirmed the narrative in Genesis on Newtonian grounds, explaining the Deluge by collision with a comet'.—*Sir Leslie Stephen.*

'Whiston was one of the first who ventured to propose that the text of Genesis should be interpreted differently from its ordinary acceptation, so that the doctrine of the earth having existed long previous to the creation might no longer be regarded as unorthodox. . . . Locke pronounced a panegyric on his theory, commending it for having explained so many wonderful and before inexplicable things'.—*Sir Charles Lyell.* The work was attacked by JOHN KEILL (*v. No. 10021 ante*).

It is a touching fact in Eighteenth Century Arianism that whatever doubts it may have had as to the cardinal fact of Christianity, it was as unwaveringly faithful to the Deluge as his wife was to Mr. Micawber.

- 15529 ——— **PRÆLECTIONES PHYSICO-MATHEMATICÆ Cantabrigiæ, quibus accedunt Tabulæ Astronomicæ Flamstediæ correctæ, Halleianæ, Cassinianæ, et Streetianæ, editio princeps**, with *diagrams*, 8vo. *old panelled calf*, 5s Cantabrigiæ, 1707

- 15530 ——— **SIR ISAAC NEWTON'S MATHEMATICK PHILOSOPHY more easily DEMONSTRATED: with DR. HALLEY'S ACCOUNT of COMETS Illustrated**. In this English Edition the Whole is corrected and improved by the Author, with 9 *plates*, 8vo. *old panelled calf* (nice copy), 7s 6d 1716

Whiston was one of the first to popularise the Newtonian theories, and, according to Professor de Morgan, one of the first to give lectures with experiments in London. He is thought to have suggested Dr. Primrose.

- 15532 **WHETHAM** (William Cecil Dampier, F.R.S.; *eugenicist*) 'IONIC VELOCITIES' (Abstract), with 2 illustrations, 8vo. (pp. 8), *sewn*, 1s 1892
- 15533 ——— The IONIZATION of DILUTE SOLUTIONS at the FREEZING POINT, with woodcuts and charts, 4to. (pp. 40), *sewn*, 2s 1900
- 15534 ——— THE RECENT DEVELOPMENT of PHYSICAL SCIENCE, with portraits, plates, and woodcuts, large post 8vo. *cl.*, 3s 6d (p. 7s 6d nett) 1904
- 15535 ——— SOLUTION and ELECTROLYSIS, with 19 illustrations and folding table, post 8vo. *cl.* (o. p.), 5s *Univ. Press, Cambridge*, 1895
- 15536 ——— TREATISE on the THEORY of SOLUTION, including the Phenomena of ELECTROLYSIS, with 66 illustrations, 8vo. *cl.*, 6s 6d (p. 10s nett) *apud eandem, ibidem*, 1902
- 15537 ——— 'On the VELOCITIES of the IONS' (Abstract), 8vo. (pp. 6), *sewn*, 1s 1895
- 15538 ——— On the VELOCITIES of the IONS and the Relative Ionization-Power of Solvents, 8vo. (pp. 5), *sewn*, 1s 6d 1894
- 15539 **W[HITE]** (J[ohn, Vicar of Cherton]) RICH CABINET, with VARIETY of INVENTIONS: unlock'd and open'd, for the Recreation of Ingenious Spirits at their vacant Hours, being Receipts and Conceits of several Natures, and fit for those who are Lovers of Natural and Artificial Conclusions; as also Variety of Recreative FIRE-WORKS both for Land, Air, and Water, and Fire-works of Service for Sea and Shore, with divers Experiments in Drawing, Painting, ARITHMETICK, GEOMETRY, ASTRONOMY, and other Parts of the Mathematicks, likewise Directions for Ringing the most usual Peals that belong to that Art; 5th Edition, with many Additions, with engraved title in compartments by T. Cross, and numerous woodcuts, 12mo. handsomely bound in mottled calf (hole burnt in one leaf and slightly soiled, but a sound copy); RARE, £1. 10s

W. Whitwood, 1677
Especially interesting for containing numerous recipes for fireworks. There are also descriptions of some curious dials, a diving bell, 'a Ship that cannot be drowned', etc. etc.; while Ball-ringing is probably included from the interest which the extraordinarily complex combinations in a ring of eight may have to a mathematician.

- 15540 **WIDMER** (Georg, M.D.) CHYMIA CORPORIS ANIMALIS, cum Lithogeognosia et Artificio Aquas Salsas dulcificandi, Methodo scientifica pertractata, 4to. (pp. 40), *sewn*, 4s *Argentorati*, 1751
- 15541 ——— THEORIA CHIMIFICATIONIS, CHYLIFICATIONIS, et LACTIFICATIONIS Methodo scientifica pertractata, 4to. (pp. 28), *sewn*, 5s *ibidem*, 1753
- 15542 **WIEGLEB** (Johann Christian) CHEMISCHE VERSUCHE über die ALKALISCHEN SALZE, neue verbesserte und vermehrte Auflage, 8vo. *sewn* (rare), 8s 6d *Berlin, Friedrich Nicolai*, 1781
- An important work, in which the author proved the existence of alkalies in fresh plants, against the opinion then held that they only existed there in the burnt state.
- 15543 ——— HANDBUCH der ALLGEMEINEN CHEMIE, 2. neuberichtigte Auflage, 2 vols. 8vo. *hf. calf*, 7s 6d *ibidem, apud eundem*, 1786
- 'He enriched pharmaceutical and technical chemistry by valuable observations.'—*Prof. E. v. Meyer*.
The publisher of both works was Friedrich Nicolai, polygraph and friend of Lessing.
- 15544 **WILCKE** (Johan Carl) TAL om MAGNETEN; with vignette on title, 12mo. (pp. 44), *sewn* (rare), 8s 6d *Stockholm*, 1764
- A short historical account of magnetism, copiously quoting the original authorities. There was no copy of it in the Ronalds Library.

- 15545 **WILDA** (Hermann, *Technikum Bremen*) Der SCHIFFSMASCHINENBAU: Grundlagen der Theorie, Berechnung und Konstruktion, auf Grund des Werkes 'Machines Marines' von L. E. BERTIN bearbeitet; with folding plate, and 492 illustrations, roy. 8vo. *cl.*, 13s (p. M. 26) *Hannover*, 1901
- 15546 **WILKENS** (Marten) ARITMETICA ofte REKEN-KONST, verciert met veel schoone Regulen ende Exempelen; laetste Druck veel verbeterd en vermeerderd; with fine portrait, 12mo. *old hf. calf*, 7s 6d *Groningen*, 1719
- Unknown to Professor de Morgan, who does not mention the author in his 'List of 1580 Names of Authors of Works on Arithmetic.'

- 15547 **WILLCOCKS** (Sir William; *Roorkee Coll.*: M.I.C.E., designer of the Aswan Dam) EGYPTIAN IRRIGATION. with Introduction by LT.-COL. J. C. ROSS, R.E., 26 folding plates and plans, and 69 other illustrations, thick roy. 8vo. *cl.*, 9s (p. £1. 16s) 1889

- 15548 ——— The IRRIGATION of MESOPOTAMIA, roy. 8vo. *cl.*, with Atlas, containing 46 plates, folio, portfolio—2 vols., 12s 6d (p. £1 nett) 1911

- 15549 ——— The RESTORATION of the ANCIENT IRRIGATION WORKS on the TIGRIS, or the Re-Creation of Chaldea, with Appendixes (Meteorological Information about Bagdad, etc.), with 10 folding plates and plans, roy. 8vo. *sewn*, 4s *Cairo*, 1903

Perhaps now that superhate has ruined German prospects in Mesopotamia, General Chesney's ghost may yet see the Euphrates Valley Railway carried out by the country which first surveyed it.

- 15550 **WILLIAMS** (John) The CLIMATE of GREAT BRITAIN; or Remarks on the Change it has undergone, particularly within the last 50 Years, accounting for the increasing Humidity and consequent CLOUDINESS and COLDNESS of our SPRINGS and SUMMERS . . . including various Experiments to ascertain the Causes of such Change, 8vo. *old hf. calf*, 6s 6d 1806

The author would have 'improved' our greatest national asset and the good Graf Zeppelin's *bête noire* by charging the air with electricity by means of electrical machines.

- 15551 **WILLIAMS** (John, *mineral surveyor*) The NATURAL HISTORY of the MINERAL KINGDOM, relative to the Strata of Coal, Mineral Veins, and the prevailing Strata of the Globe, 2nd Edition, with Appendix, containing a more extended View of Mineralogy and Geology, by JAMES MILLAR, M.D., with 2 copperplates, 2 vols. 8vo. *old calf* (rare), 10s *Edin.*, 1810

'A work of great merit for that day, and of practical utility, as containing the best account of the coal strata.'—*Sir Charles Lyell*. The work contains an attack on the Huttonian System, which, the author fears, will 'lead to downright infidelity and atheism'.

- 15553 **WILKINS** (John, 14th Bp. of Chester; first Sec. Roy. Society) MATHEMATICAL and PHILOSOPHICAL WORKS, with Life and Account of his Works, *portrait, fs. title, and numerous woodcuts*, 8vo. *old panelled calf (rare)*, 15s 1708

Comprising: I. Discovery of a New World in the Moon: II. Discourse concerning a New Planet: III. Mercury, or the Secret and Swift Messenger: IV. Mathematical Magic: V. Abstract of his Essay towards a Real Character, and a Philosophical Language.

- 15554 [—] The DISCOVERY of a WORLD in the MOONE, or a Discourse tending to prove, that 'tis probable there may be another Habitable World in that Planet, *first edition, with frontispiece, woodcuts, and diagrams*, 18mo. *calf gilt (a few wormholes in blank margin, otherwise a LARGE AND VERY FINE COPY)*, very rare, £3. 3s E. G. for Michael Sparke and Edward Forrest, 1638

- 15555 [—] SECOND EDITION:] The DISCOVERY of a NEW WORLD, or, a Discourse tending to prove, that 'tis probable there may be another HABITABLE WORLD in the MOONE, with a Discourse concerning the Possibility of a PASSAGE thither; the third Impression, enlarged, *with fine astronomical frontispiece with Copernicus, Galileo, and Kepler, by W. MARSHALL, and woodcuts*: DISCOURSE concerning a NEW PLANET. Tending to prove, That 'tis probable our Earth is one of the Planets, *first edition, with woodcuts, and engraving on copper*—2 vols. sm. 8vo. in 1, *sprinkled calf (LARGE AND VERY SOUND COPIES)*; rare, £1. 10s J. Maynard, 1640

The 'Discourse' is a stout defence of the Copernican system, by no means generally accepted at this time—cf. No. 4085 ante.

- 15556 [—] ANOTHER COPY, 2 vols. in 1, *old tree-calf (back damaged)*, £1. 5s

Although mentioning 'third Impression', this is really the second edition of the first work, and the first collected edition.

This edition of the *Discovery* has the 14th Proposition, famous in the history of airmanship, which is not included in the first: 'That tis possible for some of our postgritite, to find out a conveyance to this other world; and if there be inhabitants there, to have commerce with them.' The 13th Proposition, however, is shortened in this edition. The conveyance suggested is a 'flying Chariot', of which the particulars of construction are given in the 'Mathematicall Magick'. The author supposes a natural passage to the moon, whence he imagines locusts to come, and whither he supposes birds to migrate.

- 15557 [—] FOURTH [LAST] EDITION, corrected and amended, *with frontispiece and woodcuts*, 2 vols. sm. 8vo. in 1, *old calf, newly rebaked (front. and some ll. soiled)*, 17s 6d J. Gillibrand, 1684

- 15558 [—] Le MONDE dans la LUNE, divisé en deux Livres. Le Premier, prouvant que la Lune peut estre un Monde. Le Second, Que la Terre peut-estre une Planette. De la Traduction du Sr [J.] DE LA MONTAGNE; *with engraved frontispiece, and woodcuts*, thick 12mo. *fine copy in old calf gilt (RARE)*, £1. 5s Rouen, Jacques Cailloüé, 1656

This translation, bearing the illustrious name of Montagne, is scarce, and was unknown to Lalande. The preface, by Montagne, is written with great freedom and courage.—*Libri Catalogue*.

The lax M. Libri here had MONTAIGNE in his head, and makes himself guilty of a singular chronological blunder, since Montaigne died in 1592.

- 15559 [—] MATHEMATICALL MAGICK, or the Wonders that may be performed by Mechanicall Geometry, concerning Mechanicall Powers and Motions. Being one of the most easie, pleasant, usefull (and yet most neglected) parts of Mathematicks. Not before treated of in this Language. By J. W. M. A., *first edition, with numerous engravings on copper and wood*, 12mo. *sound copy in old calf (RARE)*, £1. 10s S. Gellibrand, 1648

- 15560 [—] ANOTHER COPY, FINELY BOUND in CONTEMPORARY DARK BLUE ENGLISH MOROCCO EXTRA, *with Harleian good tooling on sides, g. e., probably by SAMUEL MEARNE (back slightly rubbed, otherwise a very fine copy)*, £3. 3s

- 15561 [—] [SECOND EDITION; a Reprint of the First], *with portrait, and numerous engravings on copper and wood*, 12mo. *old calf*, 17s 6d E. Gellibrand, 1680

- 15562 [—] FOURTH EDITION [unaltered], *with portrait, and numerous engravings on copper and wood*, 12mo. *contemporary calf, rebaked (a sound and clean copy)*, 15s R. Baldwin, 1691

- 15563 [—] ANOTHER COPY, *wanting the portrait; contemporary calf*, 10s

An exceedingly interesting storehouse of extravaganzas in engineering, and of special interest for containing descriptions of a number of machines, some of them the author's own invention, supposed to produce PERPETUAL MOTION, a subject in which he took a special interest; 72 pages are devoted to this subject. There are also three chapters on **Airmanship**: 'Of the volant Automata, Archytas his Dove, and Regiomontanus his Eagle. The possibility and great usefulness of such inventions; Concerning the Art of flying. The several ways whereby this hath been, or may be attempted. A resolution of the two chief difficulties that seem to oppose the possibility of a flying Chariot; and others 'of the contrivance of several motions by rarified air,' on 'Wind-guns,' 'an Ark for submarine Navigation,' etc. etc. etc.

He was well versed in mechanical science, and his writings display an extensive acquaintance with a variety of ancient authorities on every-matter on which he discourses. He is the most exact writer of the XVIIth. century on the subject of Perpetual Motion, examining it thoroughly, with admirable acuteness as well as candour.—*H. Dicroix, C.E.*

- 15564 [—] MERCURY: or the SECRET AND SWIFT MESSENGER, shewing how a Man may with Privacy and Speed communicate his Thoughts to a Friend at any Distance, 2nd Edition, *with portrait, and numerous diagrams*, 12mo. *contemporary calf (RARE)*, £1. 1s R. Baldwin, 1694

- 15565 [—] ANOTHER COPY, *wanting the portrait; old sheep (back damaged; also somewhat browned or water-stained)*, 15s

'A very ingenious work on cryptography and modes of rapid correspondence.'—*D. N. B.* It contains a chapter 'concerning a language that may consist only of tunes and musical notes, without any articulate sound', and another 'concerning an universal character, that may be legible to all nations and languages'. The work includes much historical information on its subject.

- 15566 **WILKINSON** (Abraham, F.S.A. Scot.) TENTAMEN PHILOSOPHICO-MEDICUM de ELECTRICITATE, 8vo. (pp. 61), *sewn*, 4s 6d Edinburgi, 1783

There is no copy of this work in the Ronalds Library.

- 15567 **WILLIS** (John) EASY METHOD OF CONSTRUCTING the various Types of MAGIC SQUARES and MAGIC CUBES, with Symmetric Designs founded thereon, *with coloured illustrations and folding table*, cr. 4to. *cl.*, 8s Bradford, 1909

- 15568 **WINTERSTEIN** (Ernst, Zürich) und George TRIER: Die ALKALOIDE: eine Monographie der natürlichen Basen, roy. 8vo. *sewn*, 7s (p. M. 11) Berlin, 1910

15570 **WILSON** (Benjamin; F.R.S., *portrait painter*) *ESSAY towards an EXPLICATION of the PHENOMENA of ELECTRICITY*, deduced from the *Æther* of Sir Isaac Newton, *with folding copper-plate of electrical machine, etc.*, 8vo. (pp. 110), *sewn*, 7s 6d 1746

15571 — **ANOTHER COPY**, *wanting the plate; sewn*, 4s

Advancing a theory that 'the electric matter is in all bodies, in reciprocal proportion to their densities, luminous, sulphureous, and unctuous bodies only excepted, that it issues from all bodies, electrified or not electrified', and attempting an explanation of the cause of gravitation.

15572 — **SERIES of EXPERIMENTS** relating to PHOSPHORI and the Prismatic Colours they are found to exhibit in the Dark; with Translation of TWO MEMOIRS on the same, from the Bologna Acts, by J. B. BECCARI [*sic*], 4to. *boards, uncut*, 9s 1775

'This work was communicated to several foreign learned bodies, and was the subject of a memoir by Leonhard Euler, read at the Academia Scientiarum Imperialis at St. Petersburg, and of a Letter from G. B. Beccaria.'—D. N. B.

15573 — **SHORT VIEW of ELECTRICITY**, *with plate, woodcuts, and diagrams*, 4to. (pp. 37), *sewn*, 6s 1780

15574 — **SUNDRY PAPERS** relative to an ACCIDENT from LIGHTNING at PURFLEET, *with 4 folding plates by Basire, including one of the Great Cylinder in the Pantheon, and etched portrait of Wilson by himself (inserted)*, 4to. (pp. 81), *sewn (rare)*, 12s 6d [1777]

Including 'New Experiments and Observations [made at the Pantheon] on the Nature and Use of Conductors,' by B. WILSON (pp. 69).

'He had a long controversy with Benjamin Franklin on the question whether lightning-conductors should be round or pointed at the top [asserting that pointed conductors attracted the lightning], and was supported in his views by George III., who declared his experiments were sufficient to convince the apple-women in Covent Garden.'—D. N. B. The above was the author's last effort in the advocacy of ball-shaped conductors, which in the above case gained strength from the fact that the Purfleet Powder Magazine, which was provided with pointed conductors, was struck by the lightning.

15575 — **TREATISE on ELECTRICITY**, 2nd Edition, *with fine etched portrait by the ARTIST HIMSELF, and 5 copperplates*, 8vo. *old calf (rare)*, 15s 1752

The author was the first to use a conductor with the collector of his cylinder electrical machine. He also found that the electric property of tourmaline was shared by other crystals. He received the Royal Society's gold medal in 1760 for his electrical experiments.

15576 **WILSON** (Eugene Benjamin) *The CHLORINATION PROCESS, with 8 illustrations*, cr. 8vo. *cl.*, 3s 6d (p. 6s 6d nett) New York, 1901

Chlorine is used in the civilised world to extract gold from the ore and to bleach fabrics: in Germany to torture men to satisfy the hate of Eucken and Harnack.

15577 **WILSON** (George, *Chymist*) *COMPLEAT COURSE of CHYMISTRY*, containing near Three Hundred Operations, several of which have not been Publish'd before; also the Structure of several Furnaces, with near 300 Characters, which are dispers'd in Chymical Authors, and such Instruments and Vessels as are necessary in a Compleat Elaboratory, *first edition, with 8 plates of chemical characters and apparatus*, 8vo. *old calf (sound copy)*; RARE, 16s 6d W. Turner, 1699

15578 — **THIRD EDITION**, very much enlarged, with the Author's Experiments upon Metals, *with portrait et. 78 by v. d. Gucht, and 8 copperplates of chemical characters and apparatus*, 8vo. *old panelled calf (partly water-stained)*; rare, 10s 6d 1709

The last 29 pp. contain experiments on the transmutation of metals, which are not included in the foregoing editions.

15579 **WILSON** (Giffin; F.R.S.) *ESSAY on the RESOLUTION of ALGEBRAIC EQUATIONS*: attempting to distinguish particularly, the Real Principle of every Method, and the True Causes of the Limitations to which it is subject, 4to. (pp. 40), *sewn*, 2s 6d [1799]

15580 **WILSON** (Henry, *late Mathematician to H.M.'s Navy*) *The DESCRIPTION and Use of that most Excellent Invention, call'd the GLOBULAR CHART*: shewing its Agreeableness to the Globe, and the natural and easy Consequences thereof in the Practice of Navigation, with a Specimen of a Sea-Chart in that Projection, and Trigonometrical Calculation to prove the Truth thereof . . . also an Answer to Mr. Haselden's Letter to Dr. Halley, proving by Mathematical Demonstration, that his Principal Argument is false by above Three in Five, the rest invalid, and the whole incoherent, and Appendix, containing an Answer to Mr. Collier, and proving that these two Authors contradict themselves, and one another, *with plate and folding map*, 4to. (pp. 44), *sewn (rare)*, 12s 6d J. Senex and T. Taylor, 1722

This was published in connexion with the proposal to Parliament of John Senex, F.R.S., for the publication of a complete Sea Atlas on the globular projection

15581 — **SURVEYING IMPROVED**: or the Whole Art, both in Theory and Practice, fully demonstrated; 4th Edition, with Additions; also *GEODESIA ACCURATA*: or Surveying made Easy by the Chain only, with a new Essay on Solids, by WILLIAM HUME, *with numerous plates and diagrams*, 8vo. *contemporary calf (fine copy)*, 7s 6d 1755

15582 **WILSON** (Herbert Michael; *U.S. Bureau of Mines*) *IRRIGATION ENGINEERING*, 5th Edition, *with 41 plates and 148 other illustrations*, large cr. 8vo. *cl. (cover stained)*, 8s (p. 17s nett) New York, 1906

15583 — **TOPOGRAPHIC SURVEYING**, including Geographic, Exploratory, and Military Mapping, with Hints on Camping, Emergency Surgery, and Photography, *with 4 plates and 205 other illustrations*, 8vo. *cl. (cover damaged)*, 6s 6d (p. 15s nett) *ibidem*, 1902

15584 **WINCHILSEA** (Heneage Finch, 2nd Earl of): *A TRUE and EXACT RELATION of the late PRODIGIOUS EARTHQUAKE and ERUPTION of MOUNT ÆTNA, or Monte-Gibello: as it came in a Letter written to His Majesty from Naples by the Right Hon. the EARLE of WINCHILSEA, His Majestie's late Ambassador at Constantinople, who in his Return from thence, visiting Catania in the Island of Sicily, was an EY-WITNESS of that DREADFULL SPECTACLE. Together with a more particular Narrative of the same, as it is collected out of several Relations sent from Catania, with folding copperplate, and another contemporary view on copper of the Eruption (added)*, sm. 4to. (pp. 38), *hf. roan (VERY RARE)*, £1. 5s T. Newcomb in the Savoy, 1669

The last 2 pp. contain 'a List of the most considerable Towns and Places Ruin'd and destroyed by the Dreadful Earthquake and Eruptions.'

- 15586 **WING (Vincent)** EPHEMERIDES of the CELESTIAL MOTIONS for XIII Years, 1659-1671, diligently calculated according to the Doctrine of Astronomia Instaurata, and applied to the Horizon of the most famous CITY of LONDON, with a brief Introduction (pp. 156) for the Use thereof, *with woodcuts and diagrams*, sm. 4to. FINE COPY in contemporary calf, with bookplate of Lord Arundell of Wardour, and auto. of [HENRY 3RD] LORD ARUNDELL [OF WARDOUR] on title (RARE), £1. 15s

R. and W. Leybourn, 1658

*Wing issued ephemerides, the 'exactest' then to be had, according to John Flamsteed, who maintained 'a fair correspondence' with him.—*D. N. B.* They include astrological meteorology.

- 15587 ———: GEODETIC PRACTICUS REDIVIVUS: the ART of SURVEYING, formerly publish'd by VINCENT WING, now much augmented and improv'd; with APPENDIX, shewing the whole Art of Surveying by a New Instrument, called the EMPIERIAL TABLE, performing the Work of the Theodolite, Circumferenter, Semi-Circle, Chard and Needle; with the Description and Use of a New QUADRANT, with Supplement, SCIENTIA STELLARUM, containing new and accurate Tables of the Planetary Motions, etc. etc., by JOHN WING, *with copperplates, and numerous diagrams*, folio, *old panelled calf, newly and neatly rebaked* (RARE), £1. 7s 6d 1700

The 'Empireal Table' was the editor's own invention, and consisted of 'a perfect plain table, an exact theodolite and a circumferenter, and the peractore exactly adjusted, the needle or declinatory also fully completed thereon, in its own kind and order, which instruments are here fully completed upon this one instrument, without the least confusion of lines or parts.'

One of Vincent Wing's best known publications was the *Olympia Domata*, a semi-astrological almanack, continued for over a hundred years by the Stationers' Company.

- 15588 ——— HARMONICON CŒLESTE: or, the Cœlestial Harmony of the Visible World: containing, an absolute and entire Piece of Astronomie, wherein is succinctly handled the TRIGONOMETRICALL PART, generally propounded, and particularly applied to the Diurnall Motion . . . the Second Motions of the Luminaries and the other Planets, with their Eclipses, etc., grounded on the most Rational Hypothesis yet constituted, and compared with the best Observations, especially those of TYCHO BRAHE, and other more modern Observators, fitted to the Meridian of London, *with numerous diagrams*, folio, *boards (stained and last l. mounted)*, 8s 6d R. Leybourn, 1651

- 15589 **WINGATE (Edmund)** ARITHMETIQUE MADE EASIE, the SECOND BOOK: containing a perfect Method for the true Knowledge, and Practice of ARTIFICIAL ARITHMETIQUE performed by LOGARITHMS: and resolving all Arithmetick Questions by Addition and Subtraction. Together with the Construction and use of an Instrument called the LINE of PROPORTION, exhibiting the Logarithm of any Number under 100000, with Appendix, resolving likewise by Addition and Subtraction all Questions, that concern Equation of Time, Interest of Money, and Valuation of Purchases, Leases, Annuities, and the like; 2nd Edition, much enlarged by the Author himselfe, *with 10 copperplates*, 24mo. *hf. calf neat (title very slightly soiled, and some ll. waterstained, but a REMARKABLY SOUND COPY)*; **very rare**, £1. 10s R. and W. Leybourn, 1652

Wingate's Arithmetic was originally published, in two parts, in 1630. The first part appeared in 1650, revised by JOHN KERSEY the elder, as 'Arithmetique made easie.' The above second part was reprinted for the first and last time in 1652.

- 15590 ——— ARITHMETICK, containing a plain and familiar Method for attaining the Knowledge and Practice of Common Arithmetick; 4th Edition, with Appendix, containing choice Knowledge in Arithmetick, both Practical and Theoretical (pp. 243), by JOHN KERSEY [the Elder], 12mo. *hf. bound (title wanting)*; **RARE**, 10s 6d [1668]

Both the above editions were unknown to Professor de Morgan. The earliest edition described by him is that of 1673. This edition is also unknown to *D. N. B.*

- 15591 ——— TWELFTH EDITION, with a New SUPPLEMENT, of Easie Contraction in the necessary Parts of Arithmetick, useful Tables of Interest and Flemish Exchanges, also a Practical Mensuration, by GEORGE SHELLEY, sm. 8vo. *contemporary calf*, 6s 1708

- 15592 ——— THIRTEENTH EDITION, with a new Supplement, by GEORGE SHELLEY, sm. 8vo. *contemporary panelled calf (sound copy)*, 6s 1713

- 15593 ——— EIGHTEENTH EDITION, with the Additions and Emendations by JOHN KERSEY and GEORGE SHELLEY, and all the Improvements that have appeared in other Writers since their Time; also sundry others, that are entirely new, by JAMES DODSON, *with frontispiece*, 8vo. *old calf*, 7s 6d 1751

The first edition published by James Dodson, and the best of the work, but according to Professor de Morgan, with very little Wingate in it. *D. N. B.* mistakenly gives the date as 1753.

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First published at Paris, 1626, in French. The tables of logarithms are compiled from HENRY BRIGGS'S.

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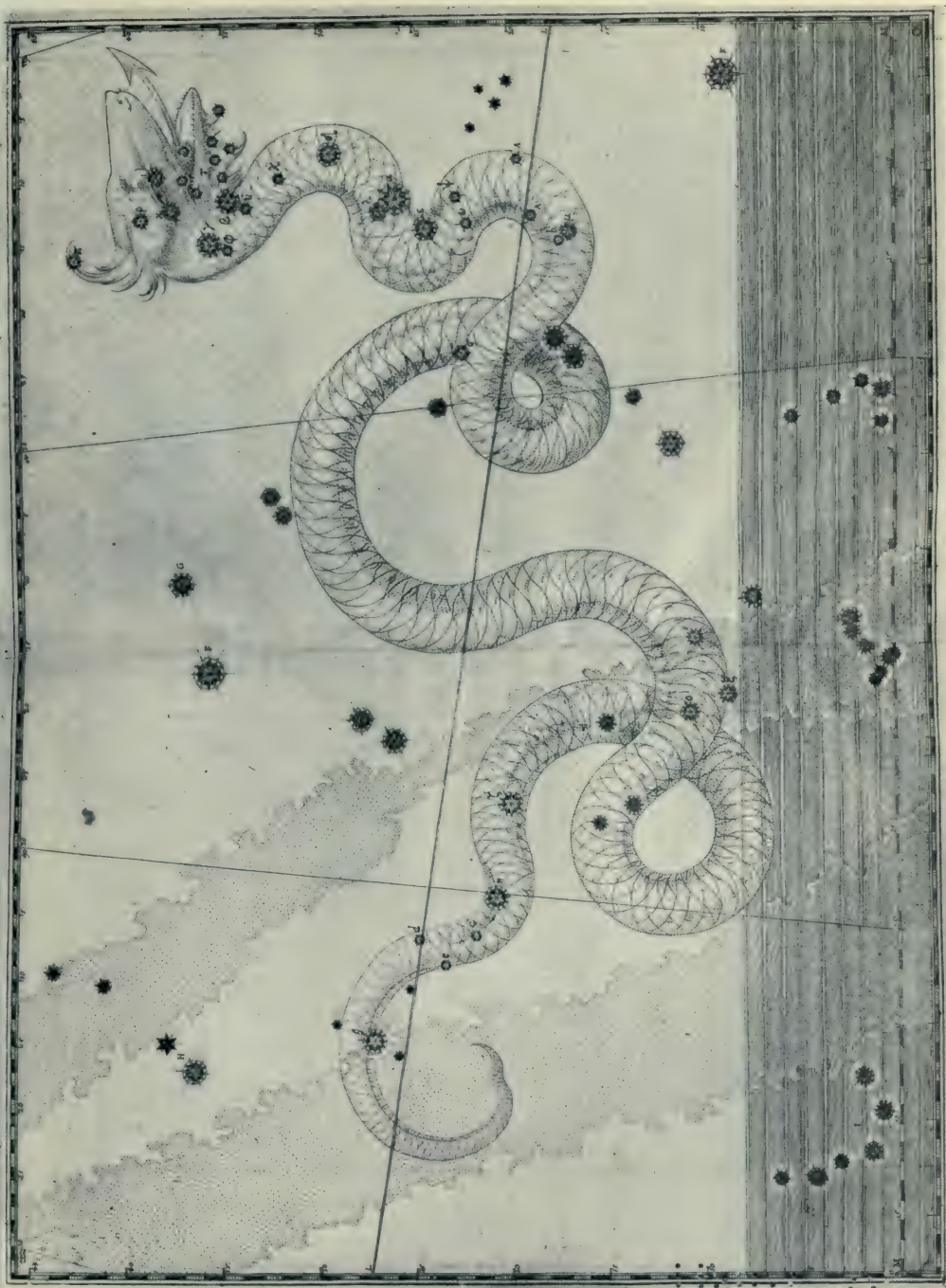
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Das.xxii.capitel

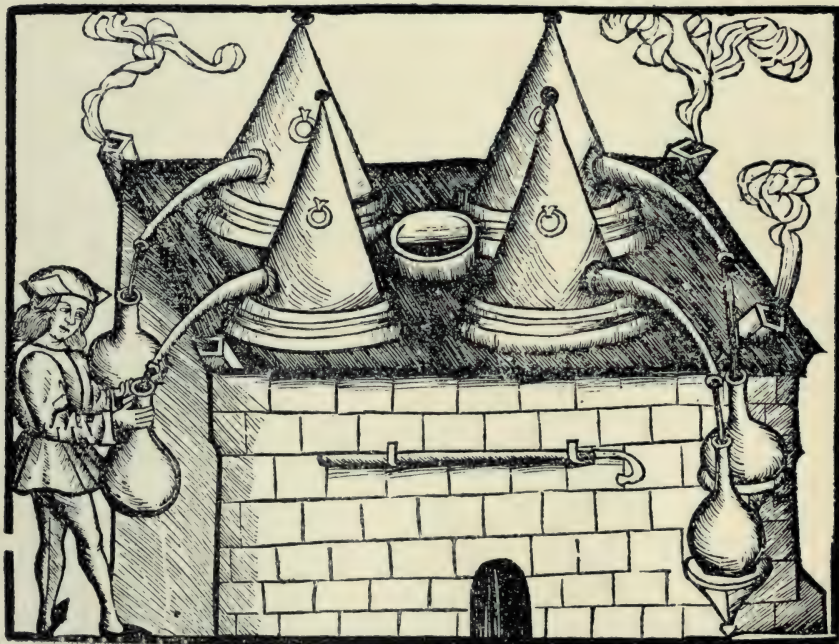
sicas colericas, das seindt bleßlin vff der
 her die von grosser hitz entspringen. Wie
 man das bleiweiß macht ist geoffenbar et
 in seruitoribus Rasis/ vnd an andern en/
 den me.

Das.xxii.capitel wie man
 distillieren soll per descensum / vnder sich
 vnd nit ober sich.



Sich dir verheiß
 sen hab in vil vñ manicherlei
 weiß vñnd maß dich zñ leren
 wie man distillieren sol/ be/
 zwingt mich solich gelübde weiter zñstrec/
 ken vñnd die zñ offenbare vñ zeigen wie mā
 sol distillieren per descensum/ das ist vñnd
 sich vñnd nit ober sich/ als sich gebürt vñnd
 wol gezimpt in vil dingē / als du wol sehest
 bist / so mā distilliert oder bñet oly vñswect
 olter / heßlin/ od alten karch speichē holtz /
 zñ heilen rinnēde vñ trieffende schwādē/ ich
 selber gesehen hab/ vñ muschat nüss oly/ be

nedictē oly/ von eyer dotter/ vñ vil andere
 der gleichē vñ kürzerüg willē anderwegē
 gelassen. Solich distillierüg mag gesche/
 hen in ein ofen gemacht von vñgebrant
 ten mursteinen/ fierechtecht in weit vñnd
 breit einer elen vñnd einn fierteil/ ie einn
 stein flach neben den andern geleit gleich
 ein herd/ zñ ring omb der selbē murstein
 vñfrecht gesetzt. in höhe von dem herd. iiii.
 fierteil einer elen/ vñsgenommen das for/
 teil/ daruff werden ysen geleit/ daruff and
 stein die rün seint/ oder ziegel genār Basel
 rach im Elsaß/ gleich ein glatten bodē od
 herd haben / in der mittē ein loch einer
 halben elen weit / so vñ der leng gemacht
 würt ein ring/ das dar durch gon ist ein
 menschen fust. Vff dem selbigen bodē
 werd gemacht zñring omb / vñnd vñ alle
 end ein gesetzt von den steinen wie vor/ in
 tieffe von dem obērn bodē/ vñ dritthalb/
 oder drei fierteil einer elen. Des form ist
 also.



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(col. :) Augustæ Vindel., Christ. Mangus, 1603

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The work is now rendered additionally valuable by the bibliographical notes and index by Prof. D. E. Smith. The original edition has been out of print for many years, and is very scarce.

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1569. [8335] Gemma. 1567. [11803] Metius.
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Repold's Universal I. Siderostat. Telescope.
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[11237] Maclear. 1853. [15349-50] Turner.
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[707-8] Carrington. 1855. [712] Cassini. 1693.
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[2716] Ludlam. 1769. [2882] Maskelyne. 1765.
[3617] Picard. 1731. [3700] Pond. 1815-19.
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— PROBLEMS: [5076] Villié. 1885-90. [12473]
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— *v. Bacterial Decomposition. Brewing, Bacteriology of. Fermentation. Nitratin.*

CHEMISTRY (ELECTRO-)-*v. Electrochemistry.*

— (ELEMENTARY): [5440] Wilson. 1860. [5938-9] Bailey. 1904-5. [7738] Fabulet. 1802. [8671] Gregory. 1808. [11101-2] Lunn. 1827. [12247] McPherson and Henderson. 1906. [12798] Odling. 1870. [14043] Rennie. 1834. [14442] Roscoe. 1888. [14773] Scapoli. 1786.

— (EXPERIMENTAL): [1083] Dossie. 1760. [1288] Faraday. 1859. [1397] Frankland. 1877. [1871] Henry. 1823. [7769] Faraday. 1859. [8092] Francis. 1842-5. [8103] Frankland. 1877. [8782] Hagen. 1786. [9153-9] Henry. 1801-29. [9172-4] Hermbstädt. 1786-1826. [9267-8] Higgins. 1795. [12314] Murray. 1833. [12354-6] Nasini. 1893-1901. [12490-1] Newth. 1892-1908. [15008] Stahl. 1731.

— (FORENSIC): [6053] Baumert, etc. 1906-7. [9718] Jago. 1909.

— (GENERAL): [26] Accum. 1807. [375-6] Berzelius. 1829-50. [440-2] Bloxam. 1867-1903. [563-4] Brande. 1821-30. [948-9] Daniell. 1843. [1078] Donovan. 1837. [1116-17] Dumas. 1828-46. [1787] Fourcroy. 1790. [1390-1] Fownes. 1844-73. [1496] Gay-Lussac. 1833. [1578-9] Gmelin. 1843-66. [1614] Graham. 1850-8. [2718] Luff and Page. 1904. [2986-8] Miller. 1863-80. [3163] Muspratt. 1854-62. [3369-70] Odling. 1861-70. [3404] Ostwald. 1890. [3461] Parkes. 1807. [3462] Parkinson. 1803. [3527] Pelouze et Fremy. 1860-4. [4079] Roscoe and Schorlemmer. 1877-93. [4797-8] Thénard. 1827-36. [4840-2] Thomson. 1807-17. [4855] Tidy. 1887. [4857] Tilden. 1897. [5268] Watts. 1889. [5425] Williamson. 1873. [6182-3] Berzelius. 1829-50. [6450] Brande. 1830. [7396] Dumas. 1828-46. [8058-60] Fourcroy. 1790-1804. [8075] Fownes. 1877. [8486-7] Gmelin. 1848-72. [8551-3] Graham. 1842-58. [8562] Graham. 1829. [8565] Göttling. 1798-1800. [8883] Handwörterbuch. 1842-50. [9988] Kämtz. 1849. [11867] Miller. 1867-78. [11951-3] Mitscherlich. 1834-47. [12312] Murray. 1867-7. [12340-1] Muspratt. 1854-62. [12795] Odling. 1861. [12844] Ostwald. 1890. [12961-5] Parkes. 1808-37. [13740] Prout. 1834. [13994-6] Regnault. 1847-51. [15226-7] Thénard. 1817-35. [15279] Thomson. 1807. [15543] Wiegand. 1786. [17322] Ostwald. 1909. [S 2617] Bayen. 1798. [S 2634-5] Berzelius. 1825-31. [SS 2406-7] Accum. 1803. [SS 2588] Nicholson. 1808.

— (HINDU): [9134] Henderson. 1803. [13944] Ray. 1902.

— (IATRO-): [79] Alessio. 1614. [674] Canepario. 1660. [858] Comtes. 1678. [898-9] Croll. 1608-57. [1053] Digby. 1669. [1409-10] French. 1652-67. [1514] Gesner. 1559. [1553-70] Glauber. 1651-67. [1858-9] Helmont. 1648-52. [1961] Hoffmann. 1722. [2527] Le Givre. 1682. [3450-3] Paracelsus. 1581-1894. [3648] Planis Campy. 1629. [4096] Rothe. 1717. [4179] Sala. 1622. [4806] Thibaut. 1672. [5067] Vigenère. 1618. [5439] Wilson. 1721. [5721-4] Alessio. 1563-78. [6031-4] Basilus Valentinus. 1646-1893. [6083] Becher. 1664. [6265] Blancard. 1700. [7296] Digby. 1658. [7911] Fioravanti. 1598. [8135-6] Freind. 1712-25. [8369] Gesner. 1599. [8463] Glaser. 1676. [8466-7] Glauber. 1689-94. [8979-81] Hartmann. 1647-63. [9119-22] Helmont. 1652-64. [9303] Hippocrates. 1690. [10111] Kerger. 1663. [10396] La Garaye. 1745. [10675] Le Febvre. 1664. [10710-11] Lémery. 1698-1710. [10717-19] Le Mort. 1687-96. [12151-2] Morley. 1684-1702. [12280] Müller. 1659. [12835] Orta. 1913. [12940-3] Paracelsus. 1650-1894. [13392-3] Plat. 1653. [13526-9]

CHEMISTRY (IATRO-), continued:

Porta. 1608-9. [13535] Porta Leone. 1584. [15912-3] Tachen. 1669-71. [15233] Thibaut. 1668. [15396] Vigenère. 1642. [15621-3] Brunshwyg. 1519-37. [15629] Cesi. 1638. [15630] Croll. 1669-70. [S 2681] Boyle. 1685. [SS 2450] Brendel. 1671. [SS 2566] Libavius. 1613-15.

— *v. Alchemy. Distilling.*

— (INDUSTRIAL AND TECHNICAL)-*v. Chemistry (Applied).*

— (INORGANIC): [1191] Erdmann. 1898. [1769] Handbuch. 1892-4. [2184] Jones. 1903. [2323] Kolbe. 1884. [2330] Krafft. 1891. [2977] Michaelis. 1878-89. [2990] Miller. 1876-87. [3229] Newth. 1903. [3958-60] Remsen. 1886-1901. [4000] Richter. 1895. [4779] Taylor. 1892. [4848] Thorpe. 1896. [8116] Frankland and Japp. 1884. [8370] Geubel. 1847. [9301] Hinds. 1902. [9102] Holleman. 1902. [9717] Jago. 1895. [12845] Ostwald. 1904. [14019-20] Remsen. 1886-9. [14453-60] Roscoe. 1887-1907. [14776] Scofield. 1866. [14939] Smith. 1906. [17330] Werner. 1909. [S 2789] Inorganic Chemistry. 1914. [S 2902] Roscoe. 1911. [S 2912] Smith. 1907. [S 2920] Stewart. 1912.

— *v. Gases, C. of.*

— (MEDICAL): [9395] Holland. 1905. [9715] Jacquin. 1785. [12791-2] Odling. 1869-76. [15486] Weber. 1780.

— (MINERAL): [13858-60] Rammelsberg. 1841-75. [15632] Moissan, etc., 1904-6.

— ('MOLECULAR'): [4327] Selmi. c. 1850.

— (NEW): [1122] Duncan. 1905. [4373] Shennstone. 1906. [9374-5] Hofmann. 1865. [7007-8] Cooke. 1876-96. [7398] Duncan. 1907. [17330] Werner. 1909.

— (ORGANIC): [159] Armstrong. 1884. [316-17] Beilstein. 1886-1902. [355] Bernthsen. 1895. [359] Berthelot. 1872. [1479] Gattermann. 1896. [1509-10] Gerhardt. 1853-6. [1971] Holleman. 1903. [2253] Kekulé. 1863-83. [2626] Liebig. 1841-4. [2976] Meyer and Jacobson. 1893-1903. [2989] Miller. 1880. [3354] Noyes. 1897. [3548] Perkin. 1894-5. [3901] Raspail. 1833. [3961-2] Remsen. 1885-1906. [3998-9] Richter. 1894-1901. [4267] Schorlemmer. 1874. [4637] Strecker and Wislicenus. 1881. [6159] Berthelot. 1860. [6161] Berthelot et Jungfleisch. 1881. [6978] Cohen. 1902. [8365] Gerhardt. 1853-6. [8675] Gregory. 1852. [9403] Holleman. 1903-6. [10042-4] Kekulé. 1861-87. [10363] Lachman. 1899. [10847] Liebig. 1840-4. [11819] Meyer and Jacobson. 1893-1903. [11868] Miller. 1880. [13083] Pelouze et Fremy. 1864. [13121-2] Perkin. 1897-1902. [13823] Radcliffe and Sinnatt. 1905. [14021] Remsen. 1896. [14461-3] Roscoe and Schorlemmer. 1881-8. [15271] Thomson. 1838. [17310] Keane. 1909. [S 2688] Cohen. 1909. [S 2901] Richter. 1907. [S 2919] Stewart. 1911.

— *v. Alkyl. Allophane. Amido-Compounds and Amines. Amyl. Carbon Compounds. Cyanogen Compounds. Hydrocarbons. Nitrogenous Organic Compounds. Organic Compounds. Organic Metals. Radicals (Organic). Volatile Organic Bases.*

— (PHARMACEUTICAL): [629] Buchner. 1849. [3072] Morelot. 1809. [6052] Baumé. 1762. [8391] Giese. 1811. [9287] Hill. 1751. [11061] Ludwig. 1671. [11327] Malouin. 1754. [12070] Morelot. 1803. [12308] Murray. 1776-84. [12735] Nollet. 1787. [14773] Scapoli. 1786. [S 2699] Dunstan. 1892. [SS 2481-2] Dioscorides. 1518-98. [SS 2599] Pomet. 1748.

— *v. Drugs.*

CHEMISTRY (PHLOGISTIC): [300] Baumé. 1778. [302-3] Becher. 1719-38. [446-7] Boerhaave. 1733. [451] Bohne. 1685. [2539] Lémery. 1756. [2967] Meurdrac. 1687. [3206-7] Neumann. 1759. [3790-5] Priestley. 1774-90. [4229, 4231] Scheele. 1785-6. [4530] Speth. 1712. [4550] Stahl. 1746-7. [6050-2] Baumé. 1757-73. [6082, 6084] Becher. 1738-55. [6290-1] Boerhaave. 1732-41. [8055-6] Fourcroy. 1785. [9264] Higgins. 1786. [11073-4] Ludolf. 1752. [11248-56] Macquer. 1751-77. [11419] Marggraf. 1767-8. [11854] Millar. 1754. [12452] Neumann. 1773. [13166] Petermann. 1750. [13549] Pott. 1738. [13654-8, 13669-70] Priestley. 1772-90. [14626-7] Sage. 1773. [14697-9] Scheele. 1780-6. [14715] Scheffer. 1779. [14995-6] Spielmann. 1763-6. [15008-10] Stahl. 1723-71. [15356] Tychem. 1787. [15412-13] Vogel. 1757-75. [15445-6] Wallerius. 1766-80. [15577-8] Wilson. 1699. [S 2654-5] Boerhaave. 1727-53. [SS 2422] Baumé. 1786. [SS 2437] Boerhaave. 1735. [SS 2530] Harrington. 1804.

— *v. Phlogiston Theory.*

— (PHOTOGRAPHIC): [1777-8, 8900-2] Hardwick. 1859-83. [10608] Leaper. 1891. [11729] Meldola. 1889-1901. [14596] Russell. 1904. [14698] Scheele. 1780. [S 2792] Kühne. 1878.

— *v. Photographic Chemicals.*

— (PHYSICAL): [861] Cooke. 1886. [974-5] Davy. 1812. [1957-8] Hoff. 1899-1903. [4531] Speyers. 1897. [7006] Cooke. 1886. [8103] Frankland. 1877. [9364] Hoff. 1902. [12420] Nernst. 1896. [13176] Petterson. 1879. [15431] Walker. 1903. [15446] Wallerius. 1776-80. [17308] Hoff. 1899-1901. [17328-9] Walker. 1904-7. [S 2710] Findlay. 1914. [S 2779] Hoff. 1898-9. [S 2790] Jones. 1903. [S 2860] Morgan. 1914. [S 2876] Perrin. 1903. [S 2920] Stewart. 1912.

— *v. Acids. Affinity. Allotropism. Atomic Theory. Catalysis. Chemistry. Principles of. Colloids. Molecular Volumes. Organic Radicals. Periodic Law. Phase Rule. Polyatomic Compounds. Radical Theory. Solubilities. Solution, Theory of. Stoichiometry. Substitution Theory. Transpiration (Liquid). Types, Theory of. Valency.*

— (PHYSIOLOGICAL): [525] Boyle. 1669. [1776] Hammarsten. 1899. [2529] Lehmann. 1851-4. [2617-19, 2623-5, 2627] Liebig. 1842-70. [3143] Mulder. 1849. [3368] Odling. 1866. [4180] Salkowski. 1893. [6404-6] Boyle. 1661-9. [6453] Brasch. 1901. [8256] Gamgee. 1880. [8277] Garnier. 1896. [8697-8] Griffiths. 1846-53. [9452] Hoppe-Seyler. 1877-81. [9561] Humboldt. 1797. [10149] Kingzett. 1878. [10691] Lehmann. 1851-4. [10835-9, 10848] Liebig. 1842-7. [11262] Macvicar. 1871. [11403] Marchand. 1842-4. [13396] Plenck. 1797. [13740-1] Prout. 1827-34. [13840] Raffe. 1873. [13988] Rees. 1842. [14006] Reid and Hambly. 1895. [14968] Snyder. 1903. [15283] Thorpe. *n.d.* [15540-1] Widmer. 1751-3. [S 2638, 2642] Berzelius. 1813-31.

— *v. Albumen. Alkaloids. Blood. Butyric Acid. Caloric Action. Capillary Tubes, Chemical Effect of. Carbon Dioxide absorbed by Plants. Cell (Living), C. of the. Chlorophyll. Coagulation. Cooking. Digestion. Fermentation. Food. Lactic Acid. Metabolism. Milk. Nitrogen absorbed by Plants. Osmosis. Oxygen given off by Plants. Plants, C. of. Poisons (Animal). Proteids. Respiration. Starch. Urine. Wood, C. of.*

— (POPULAR): [2172-5] Johnston. 1855-9. [2613-16] Liebig. 1844-78. [3842] Prout. 1834. [4382] Sibson. 1861. [7526] Ellis. 1852. [9834-5] Johnston. 1859-79. [10552-3]

CHEMISTRY (POPULAR), continued:

Lassar-Cohn. 1905-9. [10840-1] Liebig. 1851-9. [11396-7] Marcet. 1813-53. [14777] Scoffern. 1848. [SS 2618] Scoffern. 1839.

— (PRACTICAL): [443] Bloxam. 1886. [514] Bowman. 1861-2. [1636] Gray. 1828. [1775-6] Harcourt. 1872-87. [3366-7] Odling. 1854-65. [3935] Reid. 1830. [6963] Clowes. 1890. [8895] Harcourt and Madan. 1897. [11203-4] Mackenzie. 1823-5. [13986] Reece. 1814. [14837] Shaw and Hawksbee. 1731. [SS 2406-7] Accum. 1803.

— *v. Chemistry (Applied).*

— (STEREO-): [423] Bischoff. 1904. [1959] Hoff. 1892. [2975] Meyer. 1890. [4590] Stewart. 1907. [5536] Wurtz. 1876. [8924] Harper's Scientific Memoirs. 1901. [15604] Wislicenus. 1889. [17297] Bischoff. 1894. [17307] Hoff. 1892. [17313] Mamlock. 1907. [17326] Stewart. 1907. [S 2998] Asch. 1913.

— *v. Chemical Structure Theory. Isomerism. Metamerism.*

— (SYNTHETIC): [357-8] Berthelot. 1864-97. [609] Brown. 1870. [6159] Berthelot. 1860. [11730] Meldola. 1904. [13120] Perkin. 1908. [SS 2529] Hanriot, etc. 1914.

— *v. Alcohol (Synthetic). Coal Tar Colours.*

— (THEORETICAL): [2973] Meyer. 1892. [3200] Nernst. 1900. [3963] Remsen. 1892. [14022] Remsen. 1877. [17308] Hoff. 1899-1901. [17319] Meyer. 1907. [S 2779] Hoff. 1898-9. [S 2864] Nernst. 1911. [S 2906] Scherer. 1795. [SS 2046-7] Accum. 1803.

— *v. Chemical Theories. Salts, Theory of. Solutions, Theory of.*

— (THERMO-): [3139] Muir and Wilson. 1885. [3192] Naumann. 1882. [6160] Berthelot. 1879. [12256] Muir and Wilson. 1885.

— *v. Cryometry. Explosion.*

— BIBLIOGRAPHY OF: [5464] Wolff. 1845. [7014] Cooper. 1875. [7598] Erxleben. 1784. [7831] Ferguson. 1906.

— HISTORY OF: [863-4] Cooke. 1874-84. [2327] Kopp. 1843-7. [2968] Meyer. 1891. [3405] Ostwald. 1908. [4837] Thomson. *c.* 1833. [5529-30] Wurtz. 1868-9. [7068] Crell. 1786. [7822] Fehner. 1832-3. [8538] Gorton. 1910. [9361, 9363] Höfer. 1842-72. [10005] Kastner. 1814. [10053] Kemp. 1855. [10110] Kerckhoff. 1858. [10276-81] Kopp. 1843-73. [11808] Meyer. 1891. [14383] Rodwell. 1874. [14739] Schorlemmer. 1894. [15274-5] Thomson. 1830-1. [15285] Thorpe. 1902. [17323] Ostwald. 1906. [S 2853] Meyer. 1906. [S 2919-20] Stewart. 1911-12. [S 2954] Yeats. 1798. [SS 2423] Bergman. 1788-91. [SS 2622] Schorlemmer. 1879.

— *v. Chemistry (New). Drugs, H. of. Elements (Chemical), H. of.*

— PRINCIPLES AND ELEMENTS OF: [933-4] Dalton. 1808-27. [974-5] Davy. 1812. [1383-6] Fourcroy. 1792-1806. [1451] Galloway. 1888. [1669] Gren. 1800. [1916] Higgins. 1786. [2215] Kane. 1842. [2497-2500] Lavoisier. 1789-1802. [2945] Mendeléeff. 1891. [3138] Muir. 1884. [3321-2] Nicholson. 1790-6. [3514] Peart. 1789. [5245-6] Watson. 1768. [6426] Boyle. 1661. [7153-5] Dalton. 1808-27. [7161] Daniell. 1839. [7598] Erxleben. 1784. [8059, 8062-5] Fourcroy. 1795-1806. [8482] Gmelin. 1780. [8678] Gren. 1800. [9574] Hunt. 1887. [9861] Jones. 1912. [10005] Kastner. 1814. [10598-10605] Lavoisier. 1789-99. [10645] Leboulenger. 1824. [10878] Link. 1795-7. [11748] Mendeléeff. 1890.

CHEMISTRY, PRINCIPLES AND ELEMENTS OF, *continued* :

[11885] Mills. 1876. [12255] Muir. 1884.
[12348-9] Naquet. 1867-8. [12656-8] Nicholson. 1790-2. [13395] Plenck. 1801. [13420] Playfair. 1858. [14004] Reid. 1839. [16269] Thomson. 1825. [17300] Carnegie. 1894.
[17317-18] Mendeléeff. 1891-1905. [17327] Tilden. 1901. [S 2668-70] Boyle. 1661-80.
[S 2910] Shaw. 1730. [SS 2495] Fourcroy. 1807. [SS 2563-4] Lavoisier. 1802. [SS 2627] Swedenborg. 1847.

— *v. Chemical Analysis, P. of. Radical Theory. Substitution Theory. Types, Theory of. Valency.*

—, RETARDING ACTION IN : [11886] Mills. 1877.

—, TEACHING OF : [600] Brodie. 1880. [4442] Smith and Hall. 1902. [6701] Cannizzaro. 1872. [7917] Fischer. 1897.

—, USES OF : [6138] Bergman. 1783. [S 2625] Bergman. 1784.

CHESS, MATHEMATICS OF : [5125] Vospicelli. 1850. [S 3861] Jaenisch. 1862-3.

— PLAYER ('AUTOMATON') : [5445] Windisch. 1784.

CHIMNEYS AND STOVES : [168] Arnott. 1855. [1481-4] Gauger. 1713-36. [4936] Tredgold. 1824. [5842] Arnott. 1838. [6400] Boyers. 1807. [6935] Clavering. 1779. [8129] Franklin. 1793. [8358] Gérard. 1828. [9080] Hébrard. 1756. [13935] Rawlinson. 1858. [14954-5] Smith. 1894.

— *v. Smoke Abatement. Ventilation and Heating.*

CHLADNI'S FIGURES—*v. Acoustic Figures.*

CHLORATE INDUSTRY (ELECTROLYTIC) : [10124] Kershaw. 1905.

CHLORIDE PROCESS (VINCENT'S) : [14445] Roscoe. 1879.

— OF NITROGEN : [11743] Mémoires. 1807-17.

CHLORINE AND ITS COMPOUNDS : [978-9] Davy (J.). 1812. [1288] Faraday. 1859. [4492] Société Chimique. 1889-92. [6856] Chevallier. 1829. [7769-70] Faraday. 1823-59. [8163] Fritzsche. 1860. [8554] Graham. 1837. [9152] Henry. 1810. [14473] Rose. 1832. [14697] Scheele. 1786.

— *v. Hydrochloric Acid. Hypochlorites. Iron, Perchloride of.*

CHLOROPHYLL : [2084-5] Ingenhousz. 1779-85. [14817] Senebier. 1783. [S 2946] Willstätter und Stoll. 1913. [SS 2619] Senebier. 1782.

CHROMATICS—*v. Colours, Theory of.*

CHROMIUM AND ITS COMPOUNDS : [14473] Roscoe. 1832. [S 2808] Le Blanc. 1904.

CHRONOLOGY : [142] Arbutnot. 1900. [2081] Ideler. 1825-6. [2269] Kepler. 1615. [3240-1] Newton. 1728. [4692] Swan. 1653. [5451] Wislicenus. 1895. [6207-8] Beveridge. 1669-1705. [7544] Emerson. 1770. [9069] Heath. 1760. [9356] Hodgson. 1747. [9455] Hopton. 1616. [10512] La Prisse. 1780. [11612] Matzka. 1844. [12249] Mulerius. 1630. [12574-5] Newton. 1728. [12924] Padovani. 1563. [14166] Riccioli. 1669. [14628-9] Saigey. 1834. [15515] Wetherald. 1760. [16866] Ideler. 1825-6. [S 1496] Ideler. 1831. [SS 980] Albumasar. 1489. [SS 1024] Calvisius. 1685. [SS 1286] Scaliger. 1658. [SS 1333] Warren. 1825.

— *v. Almanacs. Calendar.*

CHRONOMETERS : [1155] Eiffe. 1842. [3133] Mudge. 1799. [5979] Barlow. 1821. [6170-2] Berthoud. 1773. [7111] Croucher. c. 1810. [7437-8] Earnshaw. 1808. [7474] Eiffe. 1842. [8891] Hansen. 1836. [8955, 8958-9, 8962, 8964-6, 8970] Harrison. 1737-1869. [8985] Harvey.

CHRONOMETERS, *continued* :

1823. [9977-8] Kaiser. 1868-87. [11542-3, 11550] Maskelyne. 1767-92. [12240-3] Mudge. 1781-99.

— *v. Horology.*

CHRONOMETRICAL OBSERVATIONS : [4649] Struve. 1844.

CHRONOMETRY : [1965] Holden. 1694. [2010] Houzeau. 1853. [2187] Jordan. 1885. [3525] Pellizer. 1800. [4216] Saunier. 1858. [5220] Warner. 1869. [5933] Baily. 1824. [6672] Calandrelli. 1850. [8312] Gautier. 1894. [8992] Harzer. 1899. [9761] Janvier. 1821.

— *v. Day, Length of.*

CIDER : [4361] Shannon. 1805. [8903] Hardy. 1785. [10231-2] Knight. 1813. [10302] Krebs. 1887. [10751] Le Sourd. 1892.

CIRCLE (REPEATING) : [SS 1554] Borda. 1802.

—, DIVISION OF THE : [5654] Adamson. 1815. [5905, 15702] Bachmann. 1872. [S 727] Gauss. 1801.

—, GEOMETRY OF THE : [748] Ceulen. 1619. [1664] Gregory. 1668. [2062] Huygens. 1654. [2396] La Loubère. 1651. [2874] Maseres. 1758. [3693] Poleni. 1712. [4362] Sharp. 1717. [4601] Stewart. 1746. [5739] Alvord. 1855. [5820] Archimedes. 1676. [6676] Caldani. 1782. [6768] Cataldi. 1612. [7038-9] Cotes. 1722. [7305] Dodt van Flensburg. c. 1835. [7984] Floryn. c. 1814. [9094] Hellins. 1794. [9626] Huygens. 1654. [10727] Léotaud. 1663. [11532] Maseres. 1758. [11989-91] Moivre. 1730. [14028] Renaldini. 1655. [14500] Rothe. 1805. [14750] Schöttel. 1754-6. [14959] Snell. 1621. [15991] Fiedler. 1882. [16133-4] Hesse. 1881-1906. [16337] McClelland. 1891. [16523] Richter. 1908.

— *v. Apollonian Problem.*

— OF PROPORTION—*v. Compass of Proportion.*

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- ORGANO-METALS: [8104. 8108-9. 8111] Frankland. 1852-60.
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[4569] Stauffer. 1906. [5164] Walker. 1888. [6589]
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